Final Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington

> Prepared for Washington State Department of Corrections

> > November 2012

Prepared by

Parametrix and HWA GEOSCIENCES INC.



Final Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington

Prepared for

Washington State Department of Corrections 7345 Linderson Way SW Tumwater, WA 98501-6504

Prepared by

Parametrix 4660 Kitsap Way, Suite A Bremerton, WA 98312-2357 T. 360.377.0014 F. 360.479.5961 www.parametrix.com

and



21312 30th Drive SE, Suite 110 Bothell, WA 98021 T. 425.774.0106 F. 425.774.2714

November 2012 | 215-2662-004 (AM2/03P)

CITATION

Parametrix. 2012. Final Remedial Investigation and Feasibility Study (RI/FS) Report, Washington State Penitentiary, Walla Walla, Washington. Prepared by Parametrix, Bremerton, Washington. November 2012.

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



Prepared by Blaine T. Hardy, P.E., Parametrix

Prepared by Vance Atkins, LG, LHG, HWA Geosciences, Inc.

Checked by Michael R. Warfel, LG, LHG, Shannon & Wilson, Inc.

Approved by Blaine T. Hardy, P.E., Parametrix

TABLE OF CONTENTS

1.	INT	RODUCTION1	-1
	1.1	PURPOSE AND OBJECTIVES	1-1
	1.2	REGULATORY STATUS1	1-1
	1.3	DEFINITION OF THE SITE1	1-2
	1.4	SITE LOCATION AND ADJACENT LAND USES 1	1-2
	1.5	HISTORICAL AND CURRENT FACILITY USE	1-2
	1.6	ENVIRONMENTAL SITE REGULATION AND COMPLIANCE HISTORY1	1-3
	1.7	WSP LANDFILL HISTORY 1	I- 4
	1.8	PREVIOUS INVESTIGATIONS AND EXISTING DATA	1-5
		1.8.1 1984 PCB Appraisal	1-5
		1.8.2 1992 Initial Investigation	1-5
		1.8.3 1995 Site Hazard Assessment	1-5
		1.8.4 1995 Site Assessment	1-6
		1.8.5 1996 UST Removal	1-6
		1.8.6 1998 Preliminary Hydrogeologic Evaluation for WSP Landfill	1-6
		1.8.7 1999 Sudbury Road Landfill Site Contaminant Source	
		Identification/Assessment Report	1-7
		1.8.8 2000 Preliminary Assessment Washington State Penitentiary Narrative Report	1_8
			1 0
	1.9	101 Areas of Concern	1-0
		1.9.1 Aleas of Collectification in 1.9.1 Aleas of C	1 8
		1.9.2 Water Well Inventory	1_0
		1.9.4 RI Field Investigation	1_9
		1.9.5 Vapor Intrusion Evaluation	1-9
2.	WA	TER WELL INVENTORY	2-1
	2.1	PURPOSE AND DEVELOPMENT	2-1
	2.2	INVENTORY TABULATION	2-1
	2.3	INVENTORY EVALUATION	2-1
	2.4	WSP IRRIGATION WELL	2-1
3	RIF	FIELD INVESTIGATION METHODS	₹-1
•.	3.1	GEOPHYSICAL INVESTIGATION	3-1
	3.1		S-1
	3.2	SOIL DEORE BODINGS	27
	5.5 2.4	SOIL CAS DOODES)-2 7 2
	5.4 2 5	SOIL UAS FRUDES	5-5 7-7
	5.5 2.2		o-o ∧ ∧
	3.6 2 =	GKUUNDWATEK SAMPLING	5-4
	3.7	SURFACE WATER	3-4

TABLE OF CONTENTS (CONTINUED)

4.	HYDROGEOLOGIC CONDITIONS4-1		
	4.1 GEOLOGY4-1		
	4.1.1 Regional Geology		
	4.1.2 Site Geology		
	4.2 HYDROGEOLOGY		
	4.2.1 Regional Hydrogeology		
	4.2.2 Site Hydrogeology4-2		
5.	APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS5-1		
6.	FIELD INVESTIGATION RESULTS6-1		
	6.1 REGULATORY SCREENING LEVELS		
	6.2 SOIL SAMPLING		
	6.3 SOIL GAS SAMPLING		
	6.4 GROUNDWATER SAMPLING		
	6.5 CONSTITUENTS OF CONCERN		
7.	CONCEPTUAL SITE MODEL		
	7.1 PRIMARY SOURCES OF CONTAMINATION AND PRIMARY RELEASE		
	MECHANISMS		
	7.2 SECONDARY SOURCES AND RELEASE MECHANISMS		
	7.3 PATHWAYS AND POTENTIAL RECEPTORS		
	7.4 FATE AND TRANSPORT		
8.	VAPOR INTRUSION EVALUATION8-1		
	8.1 APPROACH AND METHODOLOGY		
	8.2 DATA EVALUATION AND USE 8-2		
	8.2.1 Identification of Vapor Intrusion COCs		
	8.2.2 Statistical Analysis		
	8.3 GROUNDWATER SCREENING LEVELS		
	8 4 IOHNSON AND ETTINGER SCREENING MODEL 8-4		
	8.4.1 Model Assumptions		
	8.4.2 J&E Screening Model Results		
	8.5 JOHNSON AND ETTINGER ADVANCED MODEL		
	8.5.1 Assumptions and Data Input		
	8.5.2 Johnson and Ettinger Advanced Modeling Results		
9.	CLEANUP STANDARDS9-1		
	9.1 PRELIMINARY CLEANUP LEVELS		
	9.1.1 Soil Preliminary Cleanup Levels		
	9.1.2 Groundwater Preliminary Cleanup Levels		

TABLE OF CONTENTS (CONTINUED)

9.2 LAN	DFILL CLEANUP STANDARD ANALYSIS	
9.2.1	Soil Cleanup Standards	
9.2.2	Groundwater Cleanup Standards	
9.3 POIN	T OF COMPLIANCE	9-4
10 TECHNOL	OGY IDENTIFICATION AND SCREENING	10-1
		10 1
10.1 CLEA		
10.2 TECH		
10.3 TECH	HNOLOGY SCREENING	
10.3.1	Land Use Controls	
10.3.2	Soils	
11. CLEANUP	PACTION ALTERNATIVES	11-1
11.1 ALTI	ERNATIVE 1: MNA AND LAND USE CONTROLS	11-1
11.1.1	Description	11-1
11.1.2	Cost	
11.2 ALTH	ERNATIVE 2: LANDFILL CAP WITH INSTITUTIONAL CO	ONTROLS11-3
11.2.1	Description	
11.2.2	Cost	
11.3 ALTI	ERNATIVE 3: NO ACTION	11-5
12. EVALUAT	ION OF CLEANUP ACTION ALTERNATIVES	12-1
12.1 THRI	ESHOLD REOUIREMENTS	
12.1.1	Protection of Human Health and the Environment	
12.1.2	Compliance with Cleanup Standards	
12.1.3	Compliance with ARARs	
12.1.4	Provide for Compliance Monitoring	
12.2 OTH	ER REQUIREMENTS	
12.2.1	Permanent Solutions	
12.2.2	Permanent Solutions Criteria	
12.2.3	Reasonable Restoration Time Frame	
12.2.4	Additional Performance Criteria	
12.3 PREF	FERRED ALTERNATIVE	12-7
13. REFEREN	ICES	13-1
LIST OF FIGU	JRES	

- 1 Site and Exploration Plan
- 2 Test Pit Location Landfill Areas

Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

TABLE OF CONTENTS (CONTINUED)

- 3 Water Well Inventory
- 4 Geologic Cross Section A-A'
- 5 Geologic Cross Section B-B'
- 6 Geologic Cross Section C-C'
- 7 July 2010 Groundwater Surface
- 8 October 2010 Groundwater Surface
- 9 February 2011 Groundwater Surface
- 10 June 2011 Groundwater Surface
- 11 September 2011 Groundwater Surface
- 12 December 2011 Groundwater Surface
- 13 Groundwater Results
- 14 Conceptual Site Model
- 15 Alternative 2

LIST OF TABLES

- 1 Groundwater Analytical Data
- 2 Water Well Inventory
- 3 Field Gas Measurements from Soil Gas Probes
- 4 Groundwater Monitoring Data
- 5 Potential Applicable or Relevant and Appropriate Requirements (ARARs)
- 6 Soil Analytical Data
- 7 Surface Water Analytical Data
- 8 Soil Gas Analytical Data
- 9 Groundwater Analytical Results for Volatile Organic Compounds at the Washington State Penitentiary Site
- 10 Statistical Analysis of Groundwater Data at the Washington State Penitentiary Site
- 11 Johnson and Ettinger Groundwater Model Results
- 12 Johnson and Ettinger Screening and Advanced Groundwater Model Input Parameters
- 13 Preliminary Cleanup Levels
- 14 Screening of Technologies and Process Options
- 15 Remedial Alternatives Estimated Costs
- 16 Alternative Analysis Scoring Matrix

TABLE OF CONTENTS (CONTINUED)

APPENDICES

- A Areas of Concern (AOCs) Identified in the RI Work Plan
- B Landfill Geophysical Survey Results
- C Landfill Test Pit Geologic Logs
- D Soil Probe Boring Geologic Logs
- E Soil Gas Probe Boring Geologic Logs
- F RI Monitoring Well Geologic Logs and Construction Diagrams
- G Groundwater Monitoring Field Data Records
- H Laboratory Reports
- I Vapor Intrusion Statistic Reports
- J Opinion of Probable Costs for Alternatives
- K Regenesis Preliminary Bioremediation Analysis

KEY TERMS

μg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
AOCs	areas of concern
ARARs	applicable, relevant and appropriate requirements
bgs	below ground surface
BMPs	best management practices
BNSF	Burlington Northern Santa Fe Railroad
BTEX	benzene, toluene, ethyl benzene, and xylenes
CAOs	cleanup action objectives
CAP	Cleanup Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CI	Correctional Industries
Cl	chlorine
CLARC	Cleanup Levels and Risk Calculations
cm	centimeters
COCs	Contaminants of concern
cPAHs	Carcinogenic Polyaromatic Hydrocarbons
CPEO	Center for Public Environmental Oversight
CPOC	conditional point of compliance
CSI/A	Contaminant Source Identification/Assessment
CSM	conceptual site model
DCE	dichloroethylene
DHC	Dehalococcoides sp.
DOC	Washington State Department of Corrections
E&E	Ecology and Environment, Inc.
Ecology	Washington State Department of Ecology
EM	electromagnetic
EPA	Environmental Protection Agency
ft^2	square feet
GE	General Electric Company
GPR	Ground penetrating radar
GPS	global positioning system
GRO	Gasoline Range Organics

KEY TERMS (CONTINUED)

Н	hydrogen
HDPE	high-density polyethylene
HEAST	Health Effects Assessment Summary Tables
HRC®	Hydrogen Release Compound
HWA	HWA Geosciences Inc.
IMU	Intensive Management Unit
IRIS	Integrated Risk Information System
J&E	Johnson & Ettinger
LEL	lower explosive limit
LUCIP	Land Use Control Implementation Plan
LUST	leaky underground storage tank
MCLs	Washington State Maximum Contaminant Levels
mg/kg	milligrams per kilogram
MNA	Monitored natural attenuation
MTCA	Model Toxics Control Act
mV	millivolts
MW	monitoring wells
O&M	operation and maintenance
PA	Preliminary Assessment
РАН	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	perchloroethylene or tetrachloroethylene
PCULs	preliminary cleanup levels
PID	photoionization detector
PLP	Potential Liable Party
POC	Point of Compliance
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RI/FS	Remedial Investigation/Feasibility Study
RME	reasonable maximum exposure
SAP	Sampling and Analysis Plan
SFVs	standard formula values
Site	WSP facilities and WSP Landfill

KEY TERMS (CONTINUED)

Sudbury Road Landfill	Sudbury Road Municipal Landfill
TCE	trichloroethylene
TDSs	Total Dissolved Solids
TP	Test Pits
TPH	Total Petroleum Hydrocarbons
TPH-D	Total Petroleum Hydrocarbons as Diesel
TPH-G	Total Petroleum Hydrocarbons as Gasoline
UCL	upper confidence limit
UST	Underground Storage Tank
VOCs	volatile organic compounds
WAC	Washington Administrative Code
WARM	Washington Ranking Method
WSP	Washington State Penitentiary

1. INTRODUCTION

1.1 PURPOSE AND OBJECTIVES

The Washington State Department of Corrections (DOC) is the Potential Liable Party (PLP) responsible for completing the Remedial Investigation/Feasibility Study (RI/FS) at the Washington State Penitentiary (WSP) in Walla Walla, Washington. The DOC retained Parametrix, Inc. to implement the RI/FS, including updating the RI/FS Work Plan, conducting the RI field investigation, interpreting the field data, and preparing an RI/FS report.

The objectives of the RI/FS are as follows:

- Identify the source(s) of the chlorinated solvents observed in downgradient groundwater monitoring wells (MW).
- Determine whether historical activities at the WSP have caused on-site soil, soil vapor, or groundwater contamination that could affect off-site groundwater.
- Characterize the nature and extent of contamination that can be reasonably identified in areas of concern (AOCs) at the WSP site.
- Determine if any known contaminants are migrating onto WSP property from upgradient locations.
- Evaluate potential cleanup action alternatives for addressing contamination identified by the RI field investigation, and select a preferred alternative that meets requirements specified in the Model Toxics Control Act (MTCA) regulation.

1.2 REGULATORY STATUS

The RI/FS described in this report was stipulated under a 2008 Agreed Order (No. 6200) between the Washington State Department of Ecology (Ecology) and the Washington State Department of Corrections. Two independent events precipitated the concerns and investigations that led to the Agreed Order. In 1991, an anonymous complainant alleged that hazardous waste was improperly disposed in the WSP Landfill and the former power plant storm drain. In response to this allegation, Ecology conducted an Initial Investigation in 1992. This investigation was followed by an early notice letter informing WSP that potential contamination existed in the debris landfill. The WSP Landfill was added to Ecology's Confirmed and Suspected Contamination Sites List on June 8, 1992 (Ecology 1992a).

The second event involved an assessment of results from groundwater sampling conducted in 1993 at locations west of the WSP. Chlorinated solvents were detected in groundwater samples collected from monitoring wells located adjacent to the western WSP property boundary, upgradient of the Sudbury Road Municipal Landfill (Sudbury Road Landfill) and downgradient of the WSP Landfill (see Figure 1) (Ecology 1993). The wells are located on property owned by the City of Walla Walla, which operates the Sudbury Road Landfill. The active area of this landfill is located approximately 2 miles to the west of the WSP.

From April 3, 1995, until June 29, 1995, Ecology conducted a Site Hazard Assessment at the WSP Landfill. Based on the data collected during this assessment, the WSP was given a ranking of "3" on August 22, 1995 (a "1" represents the highest relative risk, and a "5" is the lowest). The "3" ranking is based on the potential for human exposure through the groundwater pathway. Due to this ranking, the WSP was placed on the Hazardous Sites List.

1.3 DEFINITION OF THE SITE

For the purpose of this work plan, the "Site" is defined by the property boundaries of the WSP, including the WSP facilities and WSP Landfill (Site). The site definition may be updated by new information as it becomes available. A site area map can be seen in Figure 1.

1.4 SITE LOCATION AND ADJACENT LAND USES

The WSP is an active state corrections facility located in the southeastern corner of the state of Washington in the City of Walla Walla. The current address is 1313 North 13th Avenue. The Site consists of the WSP facility, the closed WSP Landfill, and the surrounding undeveloped and agricultural land owned by the State of Washington. The WSP property, including all parcels, structures, and improvements both inside and outside the confined areas, has been expanded numerous times over the years and currently occupies 560 acres. The WSP Landfill is northwest of the facility and occupies 7.7 acres.

The Site is situated on the northern slope of the east-west-trending Walla Walla Valley. The valley is gently undulating and of low local relief. The Site elevation generally ranges from 850 to 950 feet above mean sea level with general sloping toward the west (HWA 1998). The facility is located within the SE 1/4 Section 13 and the NE 1/4 Section 24, Township 7 North, Range 35 East, and the SW 1/4 Section 18, and the NW 1/4 Section 19, Township 7 North, Range 36 East, Willamette Meridian in Walla Walla County, Washington.

The Site is bounded on the east by privately-owned land and on the west by the wastewater application section of the Sudbury Road Landfill and several upgradient groundwater monitoring wells owned by Sudbury Road Landfill. State Highway 125 and more privately-owned land bounds the Site on the north (see Figure 1). The Site is bounded on the south by Mill Creek and a drainage pond located on a privately-owned parcel that receives stormwater from the WSP and other properties in its vicinity. Properties to the east and south of the WSP include junkyards and industrial, fuel, and agricultural-chemical facilities. A Burlington Northern Santa Fe Railroad (BNSF) line that serves local industries is located along the southern edge of the property. The City of Walla Walla also bounds the Site on the south. The WSP is topographically and hydraulically upgradient of the Sudbury Road Landfill and downgradient of properties to the east and south (Ecology 2009a).

1.5 HISTORICAL AND CURRENT FACILITY USE

In 1883, the Territorial Governor authorized the selection of a suitable site for a penitentiary. In 1885, Walla Walla was chosen. Construction began in 1886 using bricks manufactured in nearby Dixie from the fine clay beds there. The WSP opened for operation on May 10, 1887, as the historical starting point for Washington State Corrections. To provide needed jobs for the prisoners, a one-story jute mill for the manufacture of sacks was built in 1892. In 1921, the jute mill was transformed into a license-plate factory, which continues to operate today, producing approximately 3,000,000 sets of plates each year. Today, the property consists of multiple parcels that total 560 acres (DOC 2009a).

The WSP currently consists of approximately 90 buildings on-site, and active expansion projects are underway (see Figure 1). WSP employs approximately 1,289 staff members. Four different institutions house offenders at different custody levels: Maximum, Close, Medium, and Minimum security.

The Correctional Industries (CI) program at WSP provides jobs for offenders in a metal fabrication shop, a license plate factory, a welding shop, and a garment factory, where

offender clothing, staff uniforms, and other similar items are made. There is also a sign shop that makes road signs for the state and counties, and a furniture refurbishing shop that does wood and upholstery restoration. Other site activities that provide jobs for the offenders include: food service, janitorial, and various prison operation and maintenance (O&M) functions including a photo processing shop, X-ray, dental and medical laboratories, laundry and former dry cleaning operations, motor pool, fix-it shop, and grounds maintenance facility (Ecology 2000).

1.6 ENVIRONMENTAL SITE REGULATION AND COMPLIANCE HISTORY

According to Ecology records, compliance concerns at the facility were first reported in March 1990, immediately after the WSP was declared a large quantity generator of dangerous waste, per WAC 173-303. At this time, the WSP was penalized for improper waste management, shipping, labeling, and handling. In November 1994, the WSP was again cited for numerous large quantity generator violations. During a 2001 hazardous waste inspection, several more hazardous waste violations were found. AOC No. 6 shown in Appendix A is the area related to the hazardous waste violations.

The most recent hazardous waste administrative order was issued in 2002 by Ecology to WSP. In this order, WSP was penalized \$54,000, which was reduced to \$43,200 because of implementation of an employee hazardous waste training program and creation of an on-site environmental compliance position. WSP completed a contingency plan in 2004 and a facility inspection plan in 2005 to further facilitate regulatory compliance.

The waste generator status of WSP, which is based on the amount of dangerous waste generated each month, has gone from large to medium to small quantity generator basis in the last 10 years. From 2000 to 2004, WSP was a large quantity generator. WSP was a medium quantity generator from 2004 until 2005, and since then, has been a small quantity generator. Several hazardous waste inspections have been conducted over the last 20 years to confirm that WSP was filing the correct generator status and complying with hazardous waste regulations. Summaries of these inspections are given below (Ecology 2009b).

On August 1, 1990, a hazardous waste inspection was conducted at the WSP. During this inspection, several compliance problems were observed, including improper waste discharges; accumulation past time limit; and failure to designate wastes, label hazardous waste containers, file a manifest exception report, conduct facility inspections, have a contingency report, or have a training plan (Ecology 1994).

Another hazardous waste inspection was conducted on November 8, 1994, when further violations were observed, including failure to designate waste according to required procedures, send dangerous waste to a permitted facility, provide required notice of a spill or discharge to Ecology, adequately label containers, provide a personnel training program, develop a schedule for maintenance and inspection of all monitoring equipment, prepare a contingency plan, or conduct weekly inspections of dangerous waste accumulation areas and containers. Documented waste materials included antifreeze, perchloroethylene sludge, lacquer thinner, still bottoms, spent methylene chloride, photochemicals, and petroleum naphtha solvent (Ecology 1999).

Additional environmental incidents were a report of a leaky underground storage tank (LUST) and alleged dumping of chemicals into the powerhouse stormwater drain and into the WSP Landfill. The LUST, reported to Ecology in April 1996, was a 500-gallon diesel tank with a hole in the end. DOC reported to Ecology that the LUST had been removed and 30 to

35 tons of petroleum-contaminated soil had been excavated for disposal at the Sudbury Road Landfill. The LUST location is shown in Appendix A and is denoted by " T_{11} ."

1.7 WSP LANDFILL HISTORY

The WSP Landfill served as the principal disposal site for DOC construction and demolition debris, ash from the penitentiary boiler, and yard and farm waste from the former state farm from the early 1970s until 1987 (HWA 1998). According to DOC, the facility was constructed in conformance to the regulations in effect at the time (Chapter 173-301 Washington Administrative Code [WAC]). When the landfill was created in the early 1970s, a culvert was installed in the natural swale of an east-west-trending intermittent drainage channel to allow drainage to continue to flow under the landfill. The construction details and materials used for the culvert are unknown. Portions of the drainage channel were filled with construction/demolition debris, yard and farm waste, and boiler ash. The fill covers approximately 7 acres (see Figure 2). Portions of the fill on either side of an unpaved road are referred to as the East Cell and the West Cell (HWA 1998).

The West Cell is 4.3 acres and is bordered on the south by a gravel road and a cornfield, on the west by an alfalfa field, on the north by the two unlined drainage ponds, and on the east by the north-south access road and the East Cell. At closure, both cells were reportedly covered with a 1-foot-thick cover of native soils (probably silts of the Palouse formation). Subsequently, the West Cell was used as a pasture and manure composting area. Construction debris was reportedly exposed at ground surface, apparently as a result of agricultural tilling (Ecology 2000). No landfill controls such as liners, leachate collection systems, or stormwater management equipment exist at the landfill.

The East Cell is 3.4 acres and is bordered on the north by an alfalfa field, on the east by the drainage channel that receives stormwater from the north parking lot and Intensive Management Unit (IMU), and on the south and on the west by a gravel road. For some time after the landfill closure, the East Cell served as a fenced pasture for cattle. Structures formerly on this cell include a large feeding trough on the southwest side of the cell, a watering trough in the southeast corner, and two open sheds on the north-central portion. Brick, concrete, rebar debris, cow manure, and hay were scattered across the cell at the ground surface. Currently, the East Cell is not used as a pasture and no structures remain in place. The East Cell soil cover, though apparently undisturbed, was subsequently covered with 9 to 12 inches of boiler ash (Ecology 2000).

In December 1991, Ecology received an anonymous complaint alleging that hazardous substances had been disposed of in the closed WSP Landfill. Materials allegedly dumped were hazardous chemicals, solvents, paints, thinners, and medical wastes. Ecology placed the WSP Landfill on the Confirmed and Suspected Contaminated Sites List in June 1992 after conducting an initial site investigation of the WSP Landfill on March 11, 1992 (Parametrix 1995).

From 1991 through 1998, groundwater monitoring data from samples collected downgradient of the WSP and at the WSP Landfill indicated that concentration levels for volatile organic compounds (VOCs) in the shallow alluvial aquifer sometimes exceeded MTCA Method A standards, and more often exceeded the more stringent Washington State Maximum Contaminant Levels (MCLs) for drinking water (Table 1). Levels of nitrate-nitrogen and Total Dissolved Solids (TDSs) sometimes exceeded MCLs for drinking water. VOCs detected within the groundwater include trichlorofluoromethane, perchloroethylene (PCE, also called tetrachloroethylene), trichloroethylene (TCE), and chloroform. Toluene has been confirmed as a contaminant in surface water at the WSP Landfill (HWA 1998).

1.8 PREVIOUS INVESTIGATIONS AND EXISTING DATA

1.8.1 1984 PCB Appraisal

In August 1984, the General Electric Company (GE) Apparatus and Engineering Services conducted a site-wide polychlorinated biphenyl (PCB) transformer inspection and prepared a PCB Regulatory Compliance Report for the WSP (GE 1984). Of the 92 oil-filled transformers existing at that time, 90 were inspected, as well as oil-containing circuit breakers and oil-filled disconnects. The results of this inspection indicated that two transformers had "running leaks" and action was taken to provide containment. No confirmation exists on how much oil actually leaked, what the leak affected, or if the oil actually contained PCBs. The data plates on the transformers only listed insulating oil. As a precaution, the WSP decided to label the contents as PCB oil without testing (DOC 2009c). The locations of these two transformers, while in operation or while stored for disposal, are unknown. Some equipment known to contain PCBs was temporarily stored in a building no longer exists, and its exact former location is unknown.

1.8.2 1992 Initial Investigation

In March 1992, Ecology conducted an Initial Investigation at the WSP due to anonymous complaints of chemical dumping in the WSP Landfill. During the investigation, no contamination was visibly apparent. The migration pathway of concern noted was groundwater. The investigation noted that a 10-inch-diameter well in the east part of the landfill was not abandoned properly. The investigation also noted that livestock carcasses had been disposed of near the northeast edge of the pond with numerous animal bones littered around the Site (Ecology 1992b).

As part of the Initial Investigation, multiple letters were sent to former employees of WSP, the County Health Department, and the contractor used during the closure of the WSP Landfill in order to gather further information. All respondents of this letter claimed to have no knowledge of any inappropriate dumping at the WSP Landfill (Ecology 1992b). Because no evidence was found to support these claims, the Initial Investigation determined that the Site needed to be carried forward in the MTCA process.

1.8.3 1995 Site Hazard Assessment

Based upon the findings of the Initial Investigation, a Site Hazard Assessment was conducted by SAIC in April 1995 in order to gather information on past and present waste management activities and other site-specific environmental data. This assessment was conducted in order to score the Site following the Washington Ranking Method (WARM) Scoring Manual guidelines. Sites are ranked on a scale of 1 to 5, with 1 representing the highest level of concern, and 5 the lowest, relative to all other assessed/ranked sites in the state. The overall ranking given to the WSP Landfill after the field site hazard assessment was "3" (Ecology 1995).

No field measurements or samples were collected at this time. Suspected hazardous substances listed at this time were PCE and TCE. The quantities of these hazardous substances were listed as unknown. The routes in which these hazardous substances were available were listed as air and groundwater. No details about the source(s) of these hazardous substances were discussed; however, it was noted that TCE and PCE were found in the two WSP monitoring wells downgradient of the WSP Landfill and upgradient of the Sudbury Road Landfill. The site hazard checklist noted that the WSP Landfill cover was not maintained and did not have run-on/runoff control or a consistent thickness of cover material.

The checklist also noted that the landfill was unlined and that liquid wastes may have been disposed in the WSP Landfill (Ecology 1995).

1.8.4 1995 Site Assessment

Parametrix, Inc. performed a Site Assessment evaluation of the closed WSP Landfill in June 1995. The purpose of the evaluation was to compile data on the landfill history and site conditions and evaluate the types of disposed materials, the contaminant migration potential, and the landfill condition (Parametrix 1995). The assessment concluded that the WSP Landfill did not present an imminent threat to human health or the environment that required immediate remedial actions. However, the assessment also concluded that there was insufficient information to confirm or rule out the possibility that contaminants might be buried in the WSP Landfill (Parametrix 1995).

1.8.5 1996 UST Removal

Beginning in August 1995, DOC performed Underground Storage Tank (UST) removal activities at the WSP. Over a period of 8 months, six 500-gallon USTs and one 1,000-gallon UST containing diesel were decommissioned (See Appendix A). All seven USTs were used to supply diesel for several emergency generators on-site. Tank removal operations were followed by post-excavation soil sampling to evaluate whether any soil contamination existed. Soil samples were typically collected from the walls and bottom of each excavation pit. In all but one location, the four wall samples were composited at the lab into two samples for analysis (either north and east, or south and west). Typically, three stockpile samples from the soil removed at each pit location were collected and composited as one sample for analysis. Samples were analyzed for Total Petroleum Hydrocarbons (TPH) as Diesel (TPH-D) using method WTPH-D (DOC 1996).

Upon removal, all seven tanks and associated piping were described as having no visible holes, abrasions, or corrosion. No visible signs of contamination, nor any odors, were observed at any of the seven tank pit locations. The report states that a field instrument was not used at any of the excavations to determine whether hydrocarbon contamination was present or further excavation and sampling were necessary (DOC 1996). Contrary to the report, there is anecdotal evidence that a field device may have been used (DOC 2009c).

Two additional USTs were found in July 2009 during construction activities at WSP. The approximate location of the two USTs is shown in Appendix A and is denoted by " T_{13} ." The origin of the USTs is unknown. The tanks were decommissioned on July 31, 2009 (DOC 2009d). Based on visual observations during the removal, the tanks are thought to have contained fuel oil. One tank was estimated to be approximately 500 gallons while the second tank was estimated to be approximately 1,000 gallons. The tanks were filled with sand in-place. Soil samples were collected from the sidewalls and floor of the excavation and were analyzed for TPH as Gasoline (TPH-G) and benzene, toluene, ethyl benzene, and xylenes (BTEX) using method NWTPH-Gx/802 1B; and TPH-D and Heavy Oil Range Hydrocarbons were analyzed using method NWTPH-Dx. Sample results are shown in Table 6 and were below applicable soil screening levels. Approximately 62 cubic yards of soil were disposed at the Finley Buttes Landfill in Boardman, Oregon. The remaining excavated soils were landfarmed on-site in accordance with Ecology requirements and were finally used as fill material for road construction activities at WSP.

1.8.6 1998 Preliminary Hydrogeologic Evaluation for WSP Landfill

In 1998, HWA Geosciences Inc. (HWA) was contracted by DOC to perform a preliminary hydrogeologic evaluation of the closed landfill at the WSP. This evaluation was designed to provide a preliminary understanding of the hydrogeologic characteristics of the area and to

evaluate surface water and groundwater quality in the area of the WSP Landfill. In addition, the investigation was designed to evaluate the presence of landfill soil gas at the WSP Landfill. The HWA investigation consisted of two phases. The first phase was conducted during February 1998 and the second was completed in July 1998.

During the first phase, HWA installed four monitoring wells (MW-1 through MW-4 at the WSP Landfill (see Figure 1), and subsequently collected groundwater samples for laboratory analysis. HWA also sampled two existing Sudbury Road Landfill monitoring wells (SLF-9 and SLF-10; see Figure 1), and collected stormwater samples from an intermittent drainage near the WSP Landfill.

During the second phase, HWA collected additional groundwater samples from the four WSP Landfill monitoring wells and three Sudbury Road Landfill monitoring wells (SLF-7, SLF-9, and SLF-10). No stormwater samples were collected during the second phase because none were observed in the intermittent drainage. A methane survey was also completed in the area of the WSP Landfill. HWA also installed 28 Geoprobe® borings in May 1999 and collected soil and soil gas samples for analysis. The results are shown in Tables 6 and 8, respectively. Based on the results of the Geoprobe® boring sampling, monitoring well MW-5 was installed in October 1999 by HWA where Geoprobe® boring GP-13 was previously installed (HWA 2002). Field monitoring of VOCs from the soil samples did not indicate the presence of contaminants; therefore, soil analyses were not run on samples collected from the boring for monitoring well MW-5.

Water Quality Standards for Ground Waters of the State of Washington (Chapter 173-200 WAC) were used for evaluation of the analytical results, where applicable. Exceedances based on these criteria included total dissolved solids, iron, manganese, nitrate-nitrogen, TCE, and PCE. Results of the soil gas survey indicated combustible gas in the east and west cells of the WSP landfill.

1.8.7 1999 Sudbury Road Landfill Site Contaminant Source Identification/Assessment Report

In 1999, Ecology completed a Contaminant Source Identification/Assessment (CSI/A) study for potential sources of VOCs detected in the upgradient groundwater monitoring wells at Sudbury Road Landfill. The Sudbury Road Landfill is immediately west of, and downgradient of, the WSP. The CSI/A was conducted under a Site Assessment Cooperative Agreement between Ecology and the Environmental Protection Agency (EPA).

The CSI/A study included a review of public and governmental documents, research on the contaminant's use and properties, interviews of officials and residents, and a field reconnaissance (Ecology 1999).

Sudbury Road Landfill groundwater monitoring data for 1991 through 1998 indicated that groundwater quality in the shallow aquifer was being impacted by upgradient sources. In some samples, nitrate, TDS, and VOCs exceeded Washington State Groundwater Quality Standards. VOCs detected in the Sudbury Road Landfill's upgradient monitoring wells included PCE, TCE, trichlorofluoromethane, and chloroform (Ecology 1999). The CSI/A study concluded that because contaminant concentrations are generally higher in the upgradient wells and lower in the downgradient wells, the Sudbury Road Landfill was not the suspected source of the VOC contamination (Ecology 2000).

Recommendations made at the conclusion of this study included the execution of a Preliminary Assessment (PA) that focused on the WSP Landfill while also evaluating past and present prison institutional operations.

1.8.8 2000 Preliminary Assessment Washington State Penitentiary Narrative Report

In 2000, Ecology released a PA report (Ecology 2000). The purpose of the PA was to assess the immediate or potential threat to human health and the environment in the area of the WSP and to collect information to support a decision on further action under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). PA activities consisted of research and file review. Conclusions based on the PA included the following:

- The shallow sedimentary aquifer was impacted by VOCs, and the WSP Landfill has been assessed as a high potential source of the contamination.
- There was no information that indicated that Mill Creek or the Walla Walla River was impacted by either runoff or shallow groundwater from the WSP property. However, because the streams ultimately receive water from the penitentiary site, there was a possible threat to human health and the environment.
- Because of the nature of the suspected contamination, there were opportunities for soil exposure and air hazards; however, the threat was judged to be low.

1.9 SCOPE OF RI/FS

1.9.1 Areas of Concern

Based on the preliminary site conceptual model and evaluation of existing data, AOCs and potential AOCs for the Site were identified during the RI scoping (E&E 2009). An AOC was defined as having the following characteristics:

- Containing one or more contaminants, confirmed by either laboratory analysis or documented observations of a release; and
- Presenting a reasonable concern that contaminants have affected soil or groundwater and may present a risk of contaminant migration or exposure to human health or the environment.

A potential AOC was defined as an area with the following characteristics:

- Information from the site history indicates that a hazardous material was used or stored in the area; and
- There is a reasonable concern that a spill or release may have occurred.

A map with locations and descriptions of the AOCs is included in Appendix A. This map was presented in the RI planning documents, as described in the following section.

1.9.2 RI Planning Documents

Ecology and Environment, Inc. (E&E) prepared a draft RI/FS Work Plan for the WSP under contract to Ecology, which was submitted to Ecology in June 2009 (E&E 2009). The DOC subsequently assumed direction of the RI/FS under the Agreed Order and retained Parametrix, Inc. to participate in discussions with DOC and Ecology and to update the Work Plan, based on the results of these discussions. The Final RI/FS Work Plan (Parametrix 2010) retained the structure and much of the content of the Work Plan prepared by E&E, incorporated updates and revisions from a supplemental data search completed by Parametrix, and was approved by Ecology following detailed discussions between Ecology and the DOC. The Work Plan includes three appendices: Sampling and Analysis Plan (SAP); Quality Assurance Project Plan (QAPP); and Health and Safety Plan.

1.9.3 Water Well Inventory

A water well inventory was developed for evaluation of wells within a 1-mile radius of WSP. The purpose of this inventory was to identify past and present land use and to identify potential wells that may need to be sampled as part of the remedial investigation field work based on the likelihood that the wells could be affected by potential contamination sources identified at WSP.

1.9.4 RI Field Investigation

The purpose of the RI field investigation was to further develop the conceptual model of the Site and subsurface conditions of the WSP Landfill and other AOCs. The RI field investigation methods and rationale are described in detail in the SAP appendix of the Work Plan and consisted of the following activities:

- Drilling boreholes for installation of new monitoring wells;
- Collecting soil samples from the borings for chemical analysis;
- Constructing and developing the monitoring wells;
- Conducting a geophysical survey of the landfill to check for buried metallic objects;
- Excavating test pits at the landfill at locations identified by the geophysical survey;
- Drilling soil probes at the landfill and other specific AOCs to check for the presence of soil contamination and the presence of VOCs in soil gas;
- Collecting soil gas samples for laboratory analysis of VOCs;
- Completing the four quarterly RI groundwater monitoring events by sampling new monitoring wells, selected pre-existing monitoring wells, and local water wells (if sufficiently documented); and
- Collecting surface water samples in the drainage below the WSP landfill.

1.9.5 Vapor Intrusion Evaluation

Ecology requested that a vapor intrusion evaluation be conducted as part of the RI/FS process to determine if vapor intrusion presents a potential risk to human health at the Site. A vapor intrusion evaluation was conducted following the RI field investigation to determine if low concentrations of VOCs detected in groundwater beneath the Site had the potential to adversely impact indoor air quality in overlying buildings.

2. WATER WELL INVENTORY

2.1 PURPOSE AND DEVELOPMENT

A joint water well inventory effort was undertaken between Ecology and Parametrix. The purpose of this inventory was twofold:

- To identify past and present land use surrounding WSP.
- To identify potential wells that might need to be sampled as part of the remedial investigation field work.

To develop the water well inventory, the Ecology Well Logs Database was used to query all records within a 1-mile radius of WSP.

2.2 INVENTORY TABULATION

From the Well Logs Database query, information such as address, well type, well depth, construction, and owner's names were tabulated for further evaluation. A total of 214 well log records were located during the Ecology well log query (Table 2). Of the wells that were tabulated, total depths ranged from 8 feet below ground surface (bgs) to 1,618 feet bgs. Well log records indicate that more than half of the wells within the 1-mile radius of WSP were for resource protection, less than five percent (seven wells) had been decommissioned, and that 59 of the 214 were for water supply.

2.3 INVENTORY EVALUATION

Resource protection wells ranged in depth from ten to 1,123 feet bgs. Owners of resource protection wells were primarily commercial food processors, WSDOT, Bonneville Power Administration, the City, and WSP. Of the 59 water supply wells, depths ranged from 20 feet bgs to 1,618 feet bgs and owners tended to be industrial facilities along with WSP and food processors. However, the majority of the water supply wells was operated by private homeowners or was public water supply wells.

An evaluation of the surrounding domestic water supply wells was accomplished by plotting these wells on a diagram for visual assessment (Figure 3). Wells located downgradient of the WSP facility and within the upper aquifer were identified on the diagram, since potential contaminants would have the best chance of appearing in the water supply at these locations. A cluster of private homes with domestic wells located to the southwest of WSP was noted as the only potential area of concern. Of these downgradient wells, their construction, geology, and hydrogeology was also evaluated and found that none of the inventoried wells were at locations or in aquifers likely to be affected by potential contamination sources identified at WSP. Therefore, sampling of inventoried water wells was not incorporated into the RI field work. However, if future WSP groundwater data show a change in potential impacts to off-site water wells, sampling of these wells may be considered.

2.4 WSP IRRIGATION WELL

During the record search performed for the 1995 Site Assessment (Parametrix 1995), it was discovered that in 1956 an irrigation well (No. 4; no longer used) had been drilled near the current southeast corner of the WSP Landfill (see Figure 2). The well log for this well shows an upper well casing 24 inches in diameter extending from the surface to a depth of 300 feet,

a 20-inch diameter casing from 290 to 414 feet, and a 16-inch diameter casing from 383 to 525 feet, at which point no further casing was used and the well was finished as an open hole in basalt to a depth of 1,004 feet. An inspection report by Ecology from 1992 (Ecology 1992b) noted that the well was not properly decommissioned, and that a copy of the Ecology water well closure regulations would be sent to the WSP officials. The Ecology records described the well casing as 10 inches in diameter, which differs from the well log record.

Although it cannot be confirmed, it is assumed that Well No. 4 was properly constructed and maintained while in use. Due to the fact that this well was not properly decommissioned as reported in the Initial Investigation by Ecology (Ecology 1992), the potential exists for this well to act as a vertical migration pathway for contamination from the upper aquifer to the underlying basalt aquifer. However, this potential is minimal due to the following factors:

- The top of the basalt aquifer is approximately 500-feet deep in the WSP area, and is overlain by 250 to 300 feet of clay separating it from the upper gravel aquifer.
- These old irrigation wells were likely drilled by cable tool, which means the well casing was driven behind the borehole, creating a reasonably tight friction fit over the 525 feet well casing driven through the unconsolidated formations above bedrock.
- The basalt aquifer is under confined conditions, with a potentiometric surface of approximately 50 feet below ground surface in the WSP area (HWA 1998). The upper alluvial aquifer appears unconfined in the WSP area. Water levels measured in the CDL monitoring wells during February and July 1998 indicate first encountered groundwater in the gravel aquifer ranges from approximately 40 to 80 feet below ground surface. Therefore, an upward gradient likely exists between the basalt aquifer and the upper aquifer.

3. RI FIELD INVESTIGATION METHODS

3.1 GEOPHYSICAL INVESTIGATION

A geophysical survey was conducted at the WSP Landfill prior to intrusive investigation measures. The geophysical survey was performed on both cells to assess the potential presence of drums or other metal containers buried at the landfill.

Parametrix retained geophysicist Philip Duoos to conduct the survey. The survey was completed utilizing magnetometer and electromagnetic (EM) methodologies. The magnetometer records magnetic gradients that may be affected by ferrous objects (drums, rebar, metallic debris, etc.). The survey was performed on transects spaced on a 20-foot grid across the suspected landfill area. The magnetometer measured and recorded data, and stationing was recorded using a global positioning system (GPS) unit. The data was combined to create a map of magnetic anomalies in the landfill. The magnetometer survey identified areas with high concentrations of buried ferrous material.

EM survey equipment measures ground conductivity through electromagnetic induction. The EM survey was primarily used along the suspected landfill boundaries to help delineate the extent of fill. Ground penetrating radar (GPR) was also attempted, but was mostly useless because of the very limited depth penetration in silty soils. The results of the survey were utilized in the selection of locations for soil gas sample points, test pit locations, and other landfill investigation activities as discussed. A copy of the geophysical report, which further discuses methodology and findings, is included as Appendix B.

3.2 LANDFILL TEST PITS

Sixteen test pits were completed with a track-mounted excavator at the former WSP Landfill. The test pits were completed to assess the presence, thickness, and composition of landfill materials. Test pit locations (see Figure 2) were determined by investigating areas which contained anomalies identified during the geophysical survey. The test pits were excavated and sampled in general accordance with the Final RI/FS Work Plan (Parametrix 2010). Test pits were completed to depths of 6 to 18 feet. Results of the geophysical survey are included in Appendix B. Test pit logs are included in Appendix C.

Test Pits (TP) TP-01 and TP-02 were completed in areas outside of identified anomalies to assess the sensitivity of the geophysical method, and to identify the approximate extent of the historic landfill. Significant metallic debris was not observed at either test pit location, although 3 to 6 feet of fill material, including construction debris (brick, concrete, and ash), was present at the locations.

Test pits completed in the vicinity of anomalies identified in the eastern half of the landfill (east of the north-south access road) contained significant debris, including brick, metallic debris (damaged drums and cans), and glassware. Burned fill or ash was observed at most locations. The material appeared to be older, consistent with reported filling of the area from east to west. Up to 16 feet of fill was observed at TP-14, and 5 to 7 feet of fill observed at other test pit locations. Damaged, soil-filled metal drums were observed at TP-5 and TP-16. The drums did not contain liquids or other suspect materials. Organic odors or elevated photoionization detector (PID) readings were not observed during test pit excavations.

Test pits completed west of the north-south access road also contained significant construction and burn debris. However, construction debris in these pits contained more wood, concrete, piping, fencing material, and plastic than observed in test pits completed to the east. This was interpreted to be younger fill material. The fill materials also appeared to be thicker in this area, typically 7 to 10 feet thick, with up to 15 feet of fill observed at TP-13. A crushed 55-gallon drum was observed at TP-9. The drum did not contain liquids or other suspect materials. Drums or other suspect containers were not observed at other locations. Organic odors or elevated PID readings were not observed during test pit excavations.

In general, test pits completed at the locations of anomalies identified during the geophysical survey encountered significant metallic debris. The debris consisted of either multiple metallic objects (containers, signage, fence material), or single large objects (steel beams or rebar-containing concrete). Groundwater was not encountered in any of the test pits.

Soil samples were collected from selected test pits based on site observations. Samples were collected from pits where a significant thickness or amount of landfill debris included apparent containers (drums, buckets). Eleven samples were collected from depths between 4 and 18 feet bgs for analysis. Samples were collected directly from the excavator bucket and were placed in labeled laboratory-provided sample containers using nitrile gloves and clean stainless steel spoons. Soil samples for VOC analysis were collected in accordance with EPA 5035A methodology.

3.3 SOIL PROBE BORINGS

A total of 13 soil probe borings were completed by the hydraulic-push method to assess shallow soil conditions at or near suspected contamination source areas (see Figure 1), in accordance with the Work Plan and the SAP (Parametrix 2010). These probes were installed by Environmental West Exploration of Spokane, Washington, by drillers licensed in the State of Washington. Soil probe geologic logs are included in Appendix D.

Steel pipe (2-inch diameter) was driven into the ground using a hydraulic impact driver. Soil samples were then retrieved through the stainless-steel sampler with a high-density polyethylene (HDPE) liner.

Field staff collected continuous depth soil samples from the hydraulic-push borings. Soil samples were placed in labeled laboratory-provided sample containers using nitrile gloves and clean stainless steel spoons. Soil samples for VOC analysis were collected in accordance with EPA 5035A methodology.

The borings were completed to depths of 12 to 20 feet. Generally, soils encountered in the borings consisted of 1 to 3 feet of fill overlying native silts. Fill typically consisted of sand and gravel with occasional debris (e.g., bricks). Exceptions to this included Borings I-P8 and I-P9, completed on the west and south sides of the Crafts Building (former dry cleaner), respectively. These borings were completed adjacent to underground utilities, and encountered 6 to 7 feet of gravelly fill. Groundwater was not encountered in any of the soil probe borings.

Elevated PID readings were observed in soil samples collected from Borings I-P1 (west side of laundry), I-P2 (north side of former auto shop), and I-P9 (south side of crafts building). Elevated PID readings or other field evidence of contamination was not noted at the other borings.

3.4 SOIL GAS PROBES

Fourteen soil gas probes were completed at locations in the closed landfill (see Figure 2) and four soil gas probes (see Figure 1) were completed at AOCs where the potential presence of VOCs has been identified (AOCs 2, 3, 5, and 6; see Appendix A). Soil probe borings were completed adjacent to selected gas probe locations for lithologic purposes. Boring logs for the soil gas probe locations are included in Appendix E.

Soil gas samples were collected by driving a slotted stainless steel pipe to varying depth intervals between 4 and 22 feet bgs with the soil probe drilling rig. A gas sampling vacuum pump was attached to the probe and connected to field sampling equipment consisting of a PID and a four-gas (oxygen, hydrogen sulfide, carbon monoxide, and lower explosive limit [LEL]) meter.

In general, elevated PID readings were not observed at the soil gas sampling locations. PID readings may have been affected by the presence of methane in the soil, which interferes with PID lamp operation and depresses the sensitivity of the device.

Soil gas oxygen content varied in the soil gas sampling locations. Oxygen may have been displaced at some locations by methane or other gases. Hydrogen sulfide was not detected in any of the borings. Carbon monoxide concentrations ranged from 0 to 500 ppm. Carbon monoxide appeared to be roughly co-located with elevated methane (measured as %LEL). Methane concentrations in borings ranged from 0 to greater than 100 percent LEL (100% LEL = 5% methane by volume). The highest methane concentrations were observed in Borings P-4 and P-5, located along the southern edge of the eastern (older) portion of the closed landfill. See Table 3 for the results of the field gas measurements. Based on observations of test pits completed in the vicinity of the soil gas probes (TP-5, TP-14, and TP-15), the area is underlain by approximately 6 to 14 feet of landfill material, including organic material. Groundwater was not encountered in any of the gas probe soil borings.

Based on the preliminary soil gas sampling, two soil gas samples were collected from Borings I-P2 and P-4 for laboratory analyses. Boring P-4 (AOC 1, the closed landfill area) was selected because field screening indicated the highest LEL reading detected during field screening of the borings. Boring I-P2 (AOC 5, located on the north side of former auto shop) was selected because field screening indicated the highest PID reading detected during field screening of the borings.

3.5 MONITORING WELLS

A total of ten new monitoring wells (MW-6 through MW-15) were installed at WSP during the RI field investigation, at locations shown on Figure 1. These wells were drilled by Environmental West Exploration of Spokane, Washington, by drillers licensed in the State of Washington. Geologic logs and construction diagrams for these new monitoring wells are included in Appendix F.

Environmental West Exploration utilized a Schramm T300 air rotary drilling rig to install monitoring wells at WSP. The soil borings were drilled by advancing a 6-inch-diameter threaded steel casing with a down-hole hammer drilling bit. Undisturbed soil samples were collected at depth intervals selected by the field geologist by withdrawing the down-hole hammer and sampling with a 2.5-inch-diameter split spoon sampler driven by a 140-pound hammer with a 30-inch drop.

Soil samples collected for analysis were generally selected from shallow soils (less than 30 feet bgs). Soil samples were placed in labeled laboratory-provided sample containers using nitrile gloves and clean stainless steel spoons. Soil samples for VOC analysis were collected in accordance with EPA 5035A methodology.

Upon reaching the targeted depth below the water table, a monitoring well consisting of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) screen and riser pipe was installed in the borehole, and was designed and completed in compliance with Chapter 173-160 WAC regulations pertaining to resource protection wells. The wells were completed to depths of 30 to 106 feet.

Completed monitoring wells were developed by the drilling contractor by surging and pumping, to remove residual fine particles from the well installation process. Well development was continued until turbidity decreased and ground water parameters (temperature, pH, specific conductance, and dissolved oxygen) stabilized.

3.6 GROUNDWATER SAMPLING

Groundwater samples were collected from four pre-RI monitoring wells (MW-1, MW-2, MW-3, and MW-5), the ten new monitoring wells, and the three Sudbury Road Landfill monitoring wells located adjacent to the western WSP property boundary (SLF-7, SLF-9, and SLF-10). The locations of these monitoring wells are shown on Figure 1. In accordance with the Work Plan, four quarterly groundwater monitoring events were completed:

- July 2010: Conventionals and VOCs.
- October 2010: Conventionals, VOCs, heavy metals, polynuclear aromatic hydrocarbons (PAH), and TPH.
- February 2011: Conventionals and VOCs.
- June 2011: Conventionals, VOCs, heavy metals, PAHs, and TPH.

Groundwater samples were collected by purging and sampling all monitoring wells using flow rates of 0.2–0.3 liters per minute (L/min) with an electric submersible pump. Using a flow-through cell, temperature, dissolved oxygen, pH, and redox were recorded. Prior to sampling, all four water quality parameters were within 5 percent for three consecutive readings. The pump was disconnected from the flow-through cell and the sample was collected from the pump in the appropriate sample containers. Field observations such as date, time, sample physical characteristics, sample location, sampler, and approximate sample depth were recorded in a field logbook. Groundwater monitoring field data records and laboratory reports for each of the sampling events are included in Appendices G and H, respectively.

3.7 SURFACE WATER

Surface water runoff was not sampled during any of the four quarters of the remedial investigation. Notes and observations of weather conditions from field personnel indicated a lack of precipitation. While the selected surface water stations were not directly observed during field work, it is extremely unlikely that running or even standing surface water would have been encountered during the quarterly sampling events.

4. HYDROGEOLOGIC CONDITIONS

4.1 GEOLOGY

Detailed site geology and hydrogeology were determined by evaluation of test pits, borings and wells installed at the Site prior to and during RI field investigation activities. Findings from the evaluation are described below.

4.1.1 Regional Geology

Surficial deposits in the area of the WSP are mapped as Palouse Formation, typically consisting of loess (windblown non-stratified glacial silt). The Palouse Formation overlies alluvial deposits consisting of sands and gravels in clay, silt, or sand matrix (Ringold Formation). Based on regional data, the alluvial deposits consist of approximately 200 feet of sands and gravels in the project area and are underlain by 250 to 300 feet of lacustrine clay. Flow basalts of the Columbia River Group underlie the clay unit.

4.1.2 Site Geology

Geologic logs of the monitoring well borings and other subsurface investigations were evaluated to develop the following descriptions of stratigraphic units encountered at the WSP site. The order of stratigraphic sequence described below is from youngest to oldest (shallowest to deepest) units. Interpreted soil and geologic units are shown on the geologic cross sections (Figures 4, 5, and 6).

Fill: Fill soils observed during the RI/FS typically consisted of silt and sand with gravel and occasional construction material (brick or asphalt). Fill soils were generally thin (1 to 3 feet thick) and were encountered during the drilling of MW-6, -10, -11, and -13. No fill material was observed in the remaining monitoring wells drilled as part of this investigation.

Loess: Loess deposits (windblown, non-stratified silt) were observed in all borings except MW-6. Loess ranged from approximately 8 to 50 feet thick at the RI/FS boring locations. The loess was very soft, generally moist and of varied color (brown, light brown, dark brown, reddish brown, tan, and tannish brown).

Alluvium: Alluvial deposits directly underlying the loess generally consisted of gravelly sands and sandy gravels. The gravel is typically weathered, subrounded basalt. Varying quantities of silt or silty layers were present in the alluvium. Occasional cobbles and boulders were also encountered during drilling. The alluvial deposits extended to at least 106 feet in the RI/FS monitoring wells; however, based on the previous site investigations, the alluvial deposits extend to greater than 100 feet. The formation was not fully penetrated during monitoring well drilling. According to logs for water wells at the Site, the gravels at the Site are underlain by a thick (approximately 250 feet) sequence of clays separating the gravels from underlying formations.

Basalt: According to logs for water wells at the Site, the top of the basalts in the vicinity is approximately 500 feet bgs.

The monitoring well logs (Appendix F) provide more detail on subsurface conditions observed during the borehole construction.

4.2 HYDROGEOLOGY

4.2.1 Regional Hydrogeology

Two main aquifers occur in the Walla Walla area, and are referred to as the gravel aquifer and the deeper, basalt aquifer. The gravel aquifer is approximately 200 feet thick in the WSP area, and is overlain by the Palouse Formation loess (Parametrix 1995). The top of the basalt aquifer is approximately 500 feet deep in the WSP area. The two aquifers are separated by 250 to 300 feet of clay. Groundwater in the basalt aquifer is under confined conditions, with a potentiometric surface of approximately 50 feet bgs in the WSP area (Parametrix 1995). The gravel aquifer appears unconfined in the WSP area. Hydrogeologic studies in the Walla Walla area indicate a westward horizontal gradient in the gravel aquifer and a net upward vertical groundwater gradient from the basalt aquifer to the gravel aquifer (Parametrix 1995).

4.2.2 Site Hydrogeology

Depth to water levels measured in the RI/FS monitoring wells during installation indicate that first encountered groundwater in the gravel aquifer ranges from approximately 24 to 82 feet bgs at the Site in July 2011 (Table 4). The groundwater elevation in MW-6 is approximately 30 feet higher than the other site monitoring wells. This well was completed in alluvial soils, and the groundwater elevation represents groundwater perched on fine-grained soils within the alluvium. This water level elevation was not incorporated into water level elevation contour maps or gradient calculations. Generally, site groundwater (excluding MW-6) ranges from approximately 40 to 99 feet bgs depending on location. Groundwater fluctuation appears to range between 4 and 5 feet between wet and dry seasons based on the current data collected from the remedial investigation.

Based on the groundwater gradient interpreted from groundwater levels measured during the field investigations and sampling events, groundwater flow in the project area is generally to the west. Figures 7 through 12 depict the groundwater potentiometric surface for the Site between July 2010 and December 2011. The figures show a consistent groundwater gradient to the west of the Site with slight mounding near MW-5 in the east of the Site. Based on the potentiometric surface shown on the six figures, it appears groundwater flows radially from MW-5 in all directions; however, the groundwater flow is predominantly to the west in the area with a short flow path to the east.

Groundwater velocity can be described by the relationship V=Ki/ θ , where "V" is the groundwater particle velocity, "k" is the hydraulic conductivity, "i" is the groundwater gradient, and " θ " is the porosity. Using an assumed porosity of 0.25 to 0.30 (typical for sands and gravels), hydraulic conductivities ranging from 20.13 to 45.35 feet/day (HWA 1998), and gradients of 0.0023 to 0.0026 measured in July 2010 and February 2011, we calculated a velocity of 55 to 170 feet/year. This is consistent with groundwater velocities of 35 to 140 feet/year calculated as part of the previous hydrogeologic study (HWA 1998).

5. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Performance of cleanup actions under MTCA (WAC 173-340-710) requires identification of applicable, relevant and appropriate requirements (ARARs). Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a site.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that; while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a site; address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site.

The potential ARARs for the Site include:

- **Chemical-Specific**: Typically health- or risk-based values that when applied to site-specific conditions represent cleanup standards.
- **Location-Specific**: Related to the geographical position and/or physical condition of the site and may affect the type of cleanup action selected for the site.
- Action-Specific: Usually technology-based or activity-based requirements or limitations on actions or conditions taken with respect to specific hazardous substances.

Action-specific requirements do not determine the selected cleanup action alternative, but indicate how or to what level a selected alternative must perform. Table 5 identifies ARARs for each medium of concern.

6. FIELD INVESTIGATION RESULTS

6.1 REGULATORY SCREENING LEVELS

Analytical results from soil, groundwater, and surface water samples generated from multiple field investigations were compiled and compared to screening levels using Ecology's Cleanup Levels and Risk Calculations (CLARC) database as a search reference (Tables 1, 6, and 7). Screening levels for the project are defined as constituent concentrations above which the levels may pose a threat to human health or the environment. The screening levels are derived from the following:

- Soil:
 - Washington State Department of Ecology MTCA Methods A and B (Chapter 173-340 WAC)
- Groundwater:
 - Washington State Department of Ecology MTCA Methods A and B (Chapter 173-340 WAC)
 - Washington State Department of Health Drinking Water Quality Standards Primary and Secondary Maximum Contaminant Levels (MCLs) for Group A Public Water Supplies (WAC 246-290-310)
- Surface Water:
 - > Washington State MTCA Method B (Chapter 173-340 WAC)
 - Washington State Fresh Surface Water Quality Standards for the Protection of Human Health and for Aquatic Life (WAC 173-201A-240)
 - Federal Clean Water Act Surface (Fresh) Water Standards for Aquatic Life (CWA 304)

Subsequent to RI/FS activities described in the Draft RI/FS (Parametrix 2012), the EPA revised toxicity information for PCE and TCE and updated the Integrated Risk Information System (IRIS) screening levels. In response to the changes at the federal level, Ecology developed new Method B and Method C levels for PCE and TCE. The revised levels were provided by Ecology in June 2012. The evaluation of contaminants, cleanup levels, and remedial technologies presented in this Final RI/FS rely on the newly published values for PCE and TCE. The PCE and TCE cleanup levels are listed in Tables 1 and 13.

Discussion of the results in comparison to the screening levels above is presented in the following sections.

Soil gas concentrations observed during one historic subsurface investigation and RI field investigation activities are presented in Table 8. Soil gas concentrations measured at the WSP Landfill were not evaluated versus screening levels; however, soil gas concentrations measured at the WSP facility are evaluated versus screening levels in Section 7.

6.2 SOIL SAMPLING

Soils were tested for a comprehensive set of chemical parameters: total petroleum hydrocarbons (TPH, diesel, and oil), aromatic hydrocarbons, heavy metals, VOCs, and PAHs. Table 6 lists all soil samples collected at the WSP facility including those collected from prior investigations compared to the selected screening levels. Samples and constituent concentrations exceeding the screening levels for soil consisted of the following:

- GP-13 from the surface to 12 feet bgs from the Phase 2 soil and groundwater investigation HWA (HWA 2002). Concentrations ranged from 0.68 milligrams per kilogram (mg/kg) to 2.40 mg/kg PCE.
- Multiple locations during the remedial investigation including:
 - > Soil from MW-10 well installation at 4 feet bgs; 140 mg/kg gasoline.
 - Soil from the Former Drycleaner Area boring I-P9 at 4 and 12 feet bgs; 1.6 mg/kg and 12 mg/kg PCE, respectively.
 - Soil from the Former Accumulation Area boring WH-P1 at 4 feet bgs; 0.024 mg/kg PCE.
 - Soil from the Landfill test pits TP-3 (7 feet bgs), TP-8 (10 feet bgs), and TP-10 (15 feet bgs); 0.024 mg/kg PCE, 940 mg/kg lead, and 0.0110 mg/kg total Carcinogenic Polyaromatic Hydrocarbons (cPAHs) as benzo(a)pyrene, respectively.

6.3 SOIL GAS SAMPLING

Soil gas was collected from two test borings that showed indications of combustible gas or organic vapors based on measurements with field instruments. Gas samples from these borings (P-4 and I-P2) were obtained by filling an evacuated metal canister provided by the laboratory. The samples were tested for volatile organic compounds. Field gas readings are shown in Table 3, and lab results are shown in Table 8. Methane above 1 percent by volume was detected at P-4 in the landfill, which is consistent with the results of studies conducted in the 1990s. A number of VOCs were detected at low levels; however, PCE and TCE, the VOCs of interest, were not detected. Further discussion of the soil gas results is contained in Section 7.

6.4 GROUNDWATER SAMPLING

Six quarterly groundwater sampling events were conducted as part of the RI field investigation, in accordance with the Work Plan and the SAP. Pre-RI and RI monitoring wells at WSP were sampled, and samples were also collected from monitoring wells SLF-7, SLF-9, and SLF-10, located on Sudbury Road Landfill property adjacent to the western WSP property line. Monitoring well locations and results are shown on Figure 13, and monitoring data are provided in Table 1. Select results that exceed screening levels are noted on Figure 13 and all results exceeding screening levels are noted in Table 1.

Chemicals that exceeded screening levels in Site groundwater are summarized as follows:

- PCE: MW-5, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14.
- TCE: MW-2, MW-3, MW-4, MW-8.
- Total cPAHs as benzo(a)pyrene: MW-2, MW-3, MW-13, MW-14.

- Arsenic: MW-7, MW-8.
- Chromium: MW-5, MW-8, MW-12, MW-15.
- Manganese: MW-1, MW-2, MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-14.
- Sodium: MW-1, MW-2, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14.
- Total Dissolved Solids: MW-1, MW-11, MW-13.
- Nitrate: MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14.
- Nitrite: MW-3, MW-4.

6.5 CONSTITUENTS OF CONCERN

Evaluations of historical data and new data generated by investigations performed during the RI/FS resulted in an enhanced understanding of site geology and hydrostratigraphy, groundwater quality, and subsurface conditions at the Site. Based this understanding of conditions at the Site, the constituents of concern are summarized below by media:

- Surface Water No constituents of concern.
- Soil Gasoline range organics, PCE, lead, total cPAHs as benzo(a)pyrene.
- Groundwater Manganese, TCE, PCE, total cPAHs as benzo(a)pyrene.

Sodium and total dissolved solids were also detected above their screening levels; however, the screening levels for sodium and total dissolved solids are based on secondary maximum contaminant levels. Contaminants of concern (COCs) with only secondary effects for people, such as color, taste, and odor, were not considered; therefore, sodium and total dissolved solids were eliminated as COCs.

Arsenic was identified above its screening level in groundwater at MW-7 and MW-8 only. Arsenic is a naturally occurring metal constituent that is present in native soil and groundwater. Arsenic has only been detected on-site during one sampling event in July 2010 and arsenic exceeded the screening level during only one of the six quarterly monitoring events. The screening level exceedance occurred directly after installation and development of monitoring wells MW-7 and MW-8. Arsenic dissolved in groundwater has not been detected at the Site. Therefore, these results appear to be anomalous or the result of development activities and arsenic was eliminated as a COC.

Chromium was identified above its screening level in groundwater at MW-5, MW-8, MW-12, and MW-15. Chromium is a naturally occurring metal constituent that is present in native soil and groundwater. Each of the four wells only had one exceedance of the screening level for chromium for one of the six quarterly monitoring events. Chromium was detected in MW-15, which is interpreted as the upgradient well at the Site, at a concentration above the screening level exceedances. Therefore, these results appear anomalous or the result of development activities and chromium was eliminated as a COC.

Nitrates and nitrites are ionic substances widely found in the environment as byproducts of fertilizers and septic systems. Nitrate is typically elevated in the Walla Walla region due to agricultural practices (Steinkampf 1989). Also, the WSP facility has operated in the past on a septic-type sanitary wastewater disposal system; however, the facility is currently discharging

all sanitary wastewater to the publicly owned treatment works. Nitrate and nitrite are primarily attributable to the agricultural practices in the region; therefore, nitrate and nitrite were eliminated as COCs.

7. CONCEPTUAL SITE MODEL

The conceptual site model (CSM) identifies the primary contaminant sources, release mechanisms, transport mechanisms, secondary contaminant sources, potential pathways, and exposure routes. Existing chemical data, site characterization data, and identification of potential human and ecological receptors were used to develop the model presented in Figure 14. Further discussion of the CSM is presented below.

7.1 PRIMARY SOURCES OF CONTAMINATION AND PRIMARY RELEASE MECHANISMS

The primary contaminant sources with contaminant concentrations that could potentially be hazardous to human and ecological receptors as determined by an exceedance of screening levels in soil are:

- The former landfill;
- Historical releases and residual contamination from de-minimus spills and motor pool operations near Building A50;
- Historical releases and residual contamination from de-minimus spills and dry cleaning operations near Buildings C30 and F20; and
- Historical releases and residual contamination from de-minimus spills and hazardous waste handling operations near Building D20.

Dust is the primary potential release mechanism for contaminants associated with the soil; however, surface soil samples were not collected.

7.2 SECONDARY SOURCES AND RELEASE MECHANISMS

When a released contaminant is retained in an environmental medium, such as soil, the medium functions as a secondary source for further chemical release. Secondary release mechanisms for contaminants present at the Site greater than screening levels include the following:

- Leaching from soil to groundwater;
- Volatilization from soil to air; and
- Volatilization from groundwater to air.

The degree of contaminant leaching is limited by contaminant concentrations, chemical properties of the contaminants, groundwater chemical properties, physical properties of the soil, characteristics of the groundwater flow system, and precipitation recharge. Volatilization is controlled by the concentration and chemical properties of the contaminants and physical properties of the soil and groundwater.

7.3 PATHWAYS AND POTENTIAL RECEPTORS

An exposure pathway is a mechanism by which receptors are assumed to contact COCs. The U.S. Environmental Protection Agency (EPA 1989) describes a complete exposure pathway in terms of four components:

• A source and mechanism of chemical release (e.g., a release of COCs to the subsurface)

- A retention or transport medium (e.g., groundwater)
- A receptor at a point of potential exposure to a contaminated medium (e.g., commercial worker using impacted groundwater)
- An exposure route at the exposure point (e.g., dermal exposure to groundwater)

If any of these four components is not present, then a potential exposure pathway is considered incomplete and is not evaluated further in a risk assessment. If all four components are present, a pathway is considered complete.

Potential exposure routes to chemicals in soil for human and ecological receptors at the Site include the following:

- **Dermal/Direct Contact:** Exposure to chemicals in soil at the Site may occur through direct contact with soil. Direct contact is a potential exposure route for current and future on-site workers, visitors, or residents. Burrowing or ground-dwelling mammals and invertebrates may be exposed directly to the soil contaminants.
- **Inhalation:** Particulates (dust) from soil can be transported by air and inhaled by potential on-site and off-site receptors. Emissions of volatile chemicals from soil may also be transported as vapors by air. Terrestrial biota could also be exposed to chemicals volatilizing to outdoor air, but if this exposure actually occurs the duration of exposure is expected to be relatively short. Burrowing animals may be exposed to volatile air contaminants in underground stagnant air while spending time within the burrow.
- **Ingestion:** Ingestion of chemicals in site soil is a primary potential exposure route for human and ecological receptors. Uptake by plants is also a potential exposure route.

Potential exposure routes to chemicals in groundwater for human and ecological receptors at the Site include the following:

- **Dermal/Direct Contact:** Exposure to chemicals in groundwater at the Site may occur through direct contact with groundwater. Direct contact is a potential exposure route for current and future on-site workers, visitors, or residents; however, impacted groundwater is not currently used or available on-site. Off-site drinking water wells is a potential exposure pathway for off-site well owners; however, contaminants do not presently extend to off-site wells.
- **Inhalation:** Emissions of volatile chemicals from groundwater may also be transported as vapors by air.
- **Ingestion:** Ingestion of chemicals in site groundwater is a potential primary exposure route for human and ecological receptors. Uptake by plants is also a potential exposure route. However, impacted groundwater is not currently used for consumption and irrigation nor is it readily available on-site or present in off-site wells.

Potentially complete exposure pathways include the following:

- Current/Future Indoor Worker:
 - > Inhalation of vapors from the subsurface (groundwater and soil) in indoor air.
 - > Direct ingestion of contaminated groundwater potentially used as drinking water.
- Current/Future Construction/Utility or Outdoor Worker:
 - > Incidental surface or subsurface soil ingestion and dermal contact
 - > Inhalation of dust from the surface or subsurface soil in outdoor air.
 - > Inhalation of vapors from groundwater potentially used for irrigation.
 - > Dermal contact with groundwater potentially used for irrigation.
- Current/Future Site Visitor or Resident (adult/child):
 - > Incidental ingestion or dermal contact with surface or subsurface soil.
 - > Inhalation of dust from surface or subsurface soil in outdoor air.
 - > Inhalation of vapors from the subsurface (groundwater and soil) in indoor air.
 - > Inhalation of vapors from groundwater potentially used for irrigation.
 - > Dermal contact with groundwater potentially used for irrigation.
- Off-site Well Owner and Well-owner Visitor:
 - > Ingestion or dermal contact with drinking water or irrigation water.
 - > Inhalation of vapors from groundwater potentially used for irrigation.
 - > Dermal contact with groundwater potentially used for irrigation.
- Ecological Receptors:
 - > Incidental soil or groundwater ingestion and dermal contact.
 - > Inhalation of vapors from the subsurface soil in outdoor air or in a burrow.
 - > Inhalation of dust from surface or subsurface soil in outdoor air.
 - > Inhalation of vapors from or dermal contact with groundwater potentially used for irrigation.
 - > Ingestion of groundwater potentially used for irrigation.

7.4 FATE AND TRANSPORT

This section describes the general fate and transport processes for metals, petroleum, cPAHs, TCE, and PCE that may be applicable to this Site.

The primary contaminant transport mechanism is dispersion caused by seepage of groundwater through the Site's shallow soil horizons. Leachable contaminants in the soils can be mobilized during infiltration of precipitation or stormwater runoff through the unsaturated zone and affect groundwater in the primary aquifer.

As the chemical equilibrium of the groundwater changes (largely due to mixing with contaminated material and changes in dissolved gas concentrations, pH, and redox potential), metals have the potential to precipitate from solution and adsorb onto the aquifer matrix. Arsenic, chromium, and manganese are more mobile under reducing conditions. Metals dissolved in groundwater are transported downgradient west of the Site. These metals can be transported downgradient as dissolved components or can adsorb to the aquifer matrix.

Petroleum constituents and cPAHs can desorb from contaminated soil particles into water infiltrating through the unsaturated subsurface and ultimately into groundwater, to be transported in the downgradient direction where they may resorb to clean soil particles. Analytical data suggest that petroleum constituents are transported only a short distance within the unsaturated subsurface at concentrations of concern. Dissolved petroleum constituents are typically subject to biodegradation by naturally occurring aerobic soil bacteria.

The chlorinated solvents migrating through the Site within groundwater are subject to both aerobic and anaerobic degradation. The biodegradation of PCE or TCE occurs primarily through reductive dechlorination, which is an anaerobic process. Existing site conditions suggest an aerobic condition due to high levels of dissolved oxygen and oxidation reduction potential (ORP). Since none of the daughter products to be expected from degradation of these solvents were detected (i.e., dichloroethylene and vinyl chloride), the dechlorination process appears to be a very small part of the degradation process occurring at the Site. With the average groundwater flow of 55 to 170 feet/year calculated in Section 4.2.2, dilution and dispersion appear to be the dominant mechanisms currently present at the Site.

Vapor migration from soil and/or groundwater is a potential transport mechanism at the Site. The occurrence of such migration has not been established. However, concentrations of volatile constituents in both soil and groundwater are such that there is a potential for vapor migration to occur.

8. VAPOR INTRUSION EVALUATION

As presented previously, groundwater beneath the WSP site has been impacted by low concentrations of VOCs. Based on the presence of VOCs in groundwater, Ecology raised a concern regarding potential vapor intrusion issues for site residents and/or site workers. The following sections present a summary of the vapor intrusion evaluation for the WSP site.

8.1 APPROACH AND METHODOLOGY

Current site conditions suggest that vapor intrusion to indoor air is a potentially complete exposure pathway. Conditions that favor vapor intrusion include:

- The presence of VOCs in groundwater beneath the Site;
- The presence of inhabited buildings overlying subsurface contamination; and
- The exceedance of groundwater VOC concentrations above generic screening levels for the protection of human health.

The vapor intrusion evaluation was conducted to determine if low concentrations of VOCs detected in groundwater beneath the Site have the potential to impact indoor air quality in overlying buildings. The methodology for the vapor intrusion evaluation was based on EPA's vapor intrusion guidance (EPA 2002), Ecology's Draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology 2009c), and the available data at the Site.

Site-specific indoor air samples were not collected as part of the RI. In addition, soil gas data is limited and generally did not include laboratory analysis of VOCs. Therefore, the vapor intrusion evaluation focused on existing groundwater data to assess the potential for constituents to volatilize from groundwater and migrate into overlying structures. Groundwater constituents detected at the Site were compared to the generic screening levels included in the Draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, which were developed for protection of indoor air under most circumstances (Ecology 2009c). Based on the results of the groundwater screening, additional evaluation of data and site-specific information utilized the EPA's Johnson and Ettinger (J&E) vapor intrusion model(s) as the primary tool to predict the potential indoor air concentrations in site buildings (Weaver 2005). The specific steps for evaluation of vapor intrusion at the Site included:

- 1. Review of available groundwater data, determination of appropriateness, and identification of vapor intrusion COCs.
- 2. Statistical analysis of the groundwater data, including calculation of 95 percent upper confidence limit (UCL) and reasonable maximum exposure (RME) for each vapor intrusion COC identified.
- 3. The maximum concentration and RME for each vapor intrusion COC were compared to Ecology groundwater screening levels developed for protection of indoor air in overlying buildings.
- 4. Inputting the RME into the J&E groundwater screening model to predict indoor air concentrations in overlying buildings. EPA default parameters were generally used for the screening model application.

- 5. Comparison of the predicted indoor air concentrations to the MTCA Method B indoor air cleanup levels.
- 6. Vapor intrusion COCs which had predicted indoor air concentrations exceeding screening levels were further evaluated utilizing the advanced J&E groundwater model to predict indoor air concentrations. Site-specific and EPA default parameters were used for the advanced model application.
- 7. Comparison of the predicted indoor air concentration to MTCA Method B indoor air cleanup levels.
- 8. Determination of the potential for vapor intrusion to present a risk to site residents and/or workers based on the modeled results.

8.2 DATA EVALUATION AND USE

The existing monitoring well network at the Site includes monitoring wells MW-1 through MW-3, MW-5 through MW-15, SLF-7, SLF-9, and SLF-10 (see Figure 1). In general, groundwater samples have been collected from the monitoring well network on a quarterly basis since June 2010 (four monitoring events; June 2010 through July 2011 with the exception of MW-15 which was installed in fall 2011). All of the monitoring well samples were analyzed for VOCs (as well as other constituents) during that time period. Therefore, all VOC data from the 16 monitoring wells for the period between June 2010 and July 2011 is appropriate for inclusion in the vapor intrusion analysis and is shown on Table 9.

8.2.1 Identification of Vapor Intrusion COCs

As part of the conservative approach to the vapor intrusion evaluation, all VOCs detected in groundwater at the Site are considered vapor intrusion COCs and were carried forward for analysis. Based on the groundwater monitoring conducted since June 2010, vapor intrusion COCs at the Site include:

- Vinyl chloride
- Chloroform
- Trichloroethylene
- Toluene
- Tetrachloroethylene
- Sec-butylbenzene
- Naphthalene

With the exception of vinyl chloride, all of the above constituents were detected in at least one monitoring well on at least one occasion. Vinyl chloride was included as a vapor intrusion COC because it is a known breakdown product of TCE and PCE, is relatively volatile, and has higher toxicity compared to other constituents (thus, resulting in very low cleanup levels). The inclusion of vinyl chloride as a vapor intrusion COC is consistent with the conservative nature of this vapor intrusion evaluation.

8.2.2 Statistical Analysis

A limited statistical analysis of the groundwater data was completed to calculate a RME limit for input into the J&E model(s). Ecology's MTCA Stat97 software (Ecology 1997) was used for the statistical analysis as follows:

- For data sets with greater than 50 percent non-detects, the maximum measured concentration was utilized as the RME.
- For all other data sets, a 95 percent UCL was calculated using the following steps:
 - (1) One-half the detection limit was used for all non-detects.
 - (2) A distribution test was performed using the MTCA Stat97 software. The software evaluates the distribution of the data set and determines if the data are normal, lognormal, or another distribution.
 - (3) Based upon the distribution of the data, the MTCA Stat97 software recommends an appropriate 95 percent UCL estimation method, and this recommended 95 percent UCL was selected as the RME for the individual vapor intrusion COC.

The results of the statistical calculations are included on Table 10. As shown, only TCE, PCE, and chloroform were detected at sufficient frequency such that a 95% UCL could be calculated. The MTCA Stat97 reports for TCE, PCE, and chloroform are included in Appendix I. Based on the statistical analysis, the following concentrations were compared to MTCA groundwater screening levels and were used as inputs to the J&E models:

Constituent	Maximum Concentration Detected (ug/l)	RME (ug/l)
Vinyl Chloride	0.2 U ^a	0.1
Chloroform	2.6	0.968
Trichloroethylene	3.3	1.34
Toluene	2.1	2.1
Tetrachloroethylene	5.3	0.61
Sec-Butylbenzene	0.89	0.89
Naphthalene	0.23	0.23

^a Not detected above the method detection limit of 0.2 micrograms per liter (μg/l).

8.3 GROUNDWATER SCREENING LEVELS

The maximum detected concentration at the Site and the calculated RME were compared to generic groundwater screening levels to assess whether additional evaluation of vapor intrusion COCs and vapor intrusion was necessary. The groundwater screening levels were obtained from the Draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology 2009c). These screening levels were specifically developed by Ecology using conservative assumptions for the protection of human health associated with indoor air quality. The screening levels are those concentrations in groundwater that are not expected to cause an exceedance of the MTCA Method B cleanup level for indoor air.

As shown on Table 10, when considering the RME for all vapor intrusion COCs, TCE was the only constituent with a RME exceeding the groundwater screening level. When considering the maximum concentration detected, chloroform and PCE were also detected above the groundwater screening level. The remaining vapor intrusion COCs are considered low contributors to the overall risk via vapor intrusion. Based on the information reviewed, TCE is the primary driver of vapor intrusion risk at the Site, if any. However, in order to conduct a conservative analysis, all vapor intrusion COCs identified above were carried forward in the J&E model analysis as described in the following sections.

8.4 JOHNSON AND ETTINGER SCREENING MODEL

The first next step of the vapor intrusion evaluation included screening of the identified vapor intrusion COCs using the EPA's J&E Screening Groundwater Model (EPA 2004). The intent of the screening analysis was to provide a preliminary determination as to whether any of the VOCs detected in groundwater at the Site has the potential to impact indoor air quality and exceed MTCA Method B indoor air cleanup levels. As discussed above, vapor intrusion COCs that exceed pre-determined criteria (MTCA Method B indoor air cleanup levels) would be further evaluated using the advanced version of the J&E groundwater model which allows greater analysis and ability to input site-specific information. The following provides the assumptions used in the screening model analysis and modeling results and evaluation.

8.4.1 Model Assumptions

The J&E volatilization model was developed by EPA (2004) and is based on the theoretical model developed by Johnson and Ettinger (1991). The J&E model incorporates convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from subsurface soils, soil gas, or groundwater into indoor spaces located directly above the source of contamination (EPA 2004). Validation studies of the J&E model report that the model predicts indoor air concentrations that are in good qualitative and quantitative agreement with detailed three-dimensional numerical modeling of radon transport into houses (Loureiro et al. 1990).

The J&E model provides an estimated attenuation coefficient that relates the vapor concentration in the indoor space to the vapor concentration at the source of the contamination (EPA 2004). Inputs to the model include chemical properties of the contaminant, soil zone properties, and structural properties of the building. The J&E model operates under several assumptions:

- 1. The model operates under steady-state conditions (i.e., enough time has passed for the vapor plume to have reached the building of interest directly above the source of contamination and for vapor concentrations to have reached their maximum values).
- 2. Contaminant vapors enter the structure primarily through cracks and openings in the walls and foundation.
- 3. Convective transport occurs primarily within the zone of influence of the building, and vapor velocities decrease rapidly with increasing distance.
- 4. Diffusion dominates vapor transport between the source of contamination and the building zone of influence.
- 5. All vapors present below the building will enter the building unless the floors and walls are perfect vapor barriers.
- 6. All soil properties in any horizontal plane are homogeneous.
- 7. The contaminant is homogeneously distributed within the zone of contamination.

- 8. The extent of contamination is greater than that of the building floor in contact with the soil.
- 9. Vapor transport occurs in the absence of convective water movement within the soil column and in the absence of mechanical dispersion.
- 10. The model does not account for transformation processes (biodegradation, hydrolysis, etc.).
- 11. The soil layer in contact with the structure floor and walls is isotropic (i.e., does not vary with distance) with respect to permeability.
- 12. Both the building ventilation rate and the difference in dynamic pressure between the interior of the structure and the soil surface are constant values.

Further explanation of these assumptions and information on the model theory can be obtained from Johnson and Ettinger (1991) and EPA (2004).

8.4.2 J&E Screening Model Results

EPA default parameters were used in the screening model unless otherwise stated. Modification of the default parameters to site-specific information included depth to groundwater and soil type. Depth to groundwater was estimated at 75 feet bgs, which corresponds to the approximate water table observed during groundwater monitoring events in monitoring well MW-5. Silt was used as the soil type in the J&E screening model, which corresponds to the vadose zone soil type of loess (Palouse Formation) encountered across the WSP site.

The estimated indoor air concentration in a typical building as predicted by the J&E screening model is shown on Table 11. The maximum groundwater concentration detected and the calculated RME for each vapor intrusion COC was used as the groundwater concentration input for all vapor intrusion COCs to obtain a range of predicted indoor air concentrations and was compared to the MTCA Method B cleanup levels in Table 11.

As shown, TCE exceeded the MTCA Method B indoor air cleanup level when the maximum groundwater concentration detected was used, but was below the MTCA Method B cleanup level when the RME was considered. Due to the conservative nature of this vapor intrusion evaluation and the uncertainty associated with the J&E model, further evaluation was conducted for TCE.

Based on the evaluation, it is not expected that the remaining constituents pose any elevated risk to site residents. Additional evaluation of TCE using site-specific data in the advanced J&E groundwater model is summarized below.

8.5 JOHNSON AND ETTINGER ADVANCED MODEL

The advanced J&E groundwater model was designed to provide a more complex evaluation of vapor intrusion associated with contaminated groundwater. It differs significantly from the screening model in that it can be modified to include site-specific information relating to soil type; soil zones with differing thicknesses and properties; depth to groundwater; length, width, and height of overlying buildings; and building air exchange rates. The following provides the assumptions used in the model, site-specific and default parameters, and the modeling results.

8.5.1 Assumptions and Data Input

Table 12 summarizes the default parameters as recommended by the EPA (2004) and the available site-specific parameters for the WSP site. A summary of the model inputs is provided below:

- Chemical specific groundwater concentrations (TCE maximum = $3.3 \mu g/l$, 95 percent UCL = $1.34 \mu g/l$).
- The depth to the water table was estimated at 75 feet, which corresponds to the approximate water level depth in monitoring well MW-5.
- Groundwater temperatures were not collected and therefore the EPA (2004) default temperature of 10 degrees C was adopted.
- Depth below grade represents the depth from the soil layer to the bottom of the enclosed space. Site-specific measures of this parameter were not available; therefore, the EPA (2004) default parameters for slab-on-grade (15 centimeters [cm]) and basement (200 cm) were adopted for the modeling. Existing residential buildings (Buildings D-70 and D-80) used in the analysis have at least partial basements; therefore, the basement scenario was used and provided a conservative approach. Occupational buildings (Buildings F-20 and C-30) used in the analysis do not have basements, such that the occupational scenario used the slab-on-grade value of 15 cm.
- Soil type represents a conservative estimate of the soil properties throughout the WSP site. Geologic cross-sections suggest site soils contain loess (silt) in the upper zone (0 to 40 feet bgs) and sands and gravels in the lower zone (40 to greater than 75 feet bgs). These soil types were used in the model as Stratum A and Stratum B, respectively.
- Soil properties (bulk density, total porosity, and water-filled porosity) were not collected as part of sampling; therefore, the EPA (2004) default parameters for silt (Stratum A) and sand (Stratum B) were used.
- Floor thickness represents the thickness of the concrete floor. Since no site-specific information was available and may vary across buildings, the EPA (2004) default value of 10 cm was adopted.
- Building pressure differential describes the wind effects on the structure, stack effects due to heating of the interior air, and unbalanced mechanical ventilation that result in a negative pressure with respect to the soil surface generated within the structure. Since no site-specific properties were available, the EPA (2004) default value of 40 g/cm-s² was adopted.
- Seam crack width represents the area from which vapors transport from the soil to the indoor air of the structure. Since no site-specific properties were available, the EPA (2004) default value of 0.1 cm was adopted.
- The indoor exchange rate is the rate at which air is ventilated in the structure. Since no site-specific properties were available, the EPA (2004) default value of 0.25 (1iters/hour) was adopted.

• Building enclosed space (length, width, and height) volumes were estimated for on-site buildings based on information provided by WSP. Several buildings were evaluated based on the site-specific data, which included 9,500 square feet (ft²) and 18,500 ft² residential buildings (based on the smallest and largest residential floor size at the Site) and 7,200 ft² and 97,160 ft² occupational buildings (based on the smallest and largest occupational buildings at the Site).

The following provides the results of the advanced vapor intrusion modeling for TCE at the WSP site.

8.5.2 Johnson and Ettinger Advanced Modeling Results

As described above, a mix of EPA default parameters and site-specific information was used in a variety of scenarios for the advanced J&E groundwater model. The scenarios were completed to provide a range of predicted indoor air concentrations based on modified conditions. As shown in Table 9, the maximum concentration detected and the calculated RME (from Table 10) was used as the groundwater concentration input for TCE to obtain a predicted indoor air concentration. The predicted indoor air concentrations under various scenarios were compared to the MTCA Method B cleanup levels.

The predicted indoor air concentration for TCE under various residential scenarios ranged from 0.03 micrograms per cubic meter (μ g/m³) (large building and 95% UCL) to 0.1 μ g/m³ (small building and maximum detected concentration). None of the predicted concentrations exceed the MTCA Method B indoor air cleanup level for TCE of 0.1 μ g/m³ (Table 11). Based on the J&E vapor intrusion modeling under very conservative assumptions, it does not appear that groundwater impacted by VOCs beneath the Site poses a risk to long-term site residents.

The predicted indoor air concentration for TCE under various occupational scenarios ranged from 0.0096 μ g/m³ (large building and 95 percent UCL) to 0.092 μ g/m³ (small building and maximum detected concentration). None of the predicted concentrations exceed the MTCA Method B indoor air cleanup level for TCE of 0.1 μ g/m³ (Table 11). It should be noted that the MTCA Method C (industrial) indoor air cleanup level for TCE is 1 μ g/m³. Therefore, it appears that the predicted indoor air concentrations for TCE under conservative assumptions for occupational workers is significantly below any level of concern and does not pose a risk to site workers.

9. CLEANUP STANDARDS

Cleanup standards consist of two components:

- Cleanup Levels (CULs): Chemical concentrations.
- Points of Compliance: Point at which the cleanup levels must be met.

Cleanup standards are established in accordance with WAC 173-340-700 through 173-340-760.

The cleanup standards proposed for the Site are determined based on exposures to human health and the environment. As documented within previous sections of this report, soil and groundwater are impacted with COCs above screening levels; therefore, cleanup standards are developed for these media. The cleanup standard selection process for the Site is described in the following sections.

9.1 PRELIMINARY CLEANUP LEVELS

MTCA regulations require that the cleanup levels used to evaluate remediation alternatives for the Site be "...at least as stringent as all applicable state and federal laws..." (RCW 70.105D.030 (2)(e)). State and federal laws described in WAC 173-340-710 may impose additional requirements at the discretion of Ecology.

Where applicable, the CULs were updated based on the most recent toxicity data in Ecology's Cleanup Levels and Risk Calculation (CLARC) database, EPA's IRIS database or EPA's Health Effects Assessment Summary Tables (HEAST) database.

A conservative approach was used to select standards that were most protective of human health and the environment for soil and groundwater. Selected standards by which media were evaluated against are listed below. The CULs listed below are considered preliminary as Ecology will determine the final CULs for the facility.

9.1.1 Soil Preliminary Cleanup Levels

The following preliminary cleanup levels were selected for soil COCs:

• MTCA Method B Soil Cleanup Levels for Unrestricted Land Use (Chapter 173-340 WAC, Equations 740-1 and 740-2 under WAC 173-340-740(3) (standard MTCA Method B equations, which were used to calculate MTCA Method B standard formula values (SFVs) in the CLARC Database).

A terrestrial ecological evaluation was not conducted for the facility due to exclusion granted by WAC 173-340-7491(1)(b) which states:

All soil contaminated with hazardous substances is, or will be, covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed to the soil contamination. To qualify for this exclusion, an institutional control shall be required by the department under WAC 173-340-440. An exclusion based on planned future land use shall include a completion date for such future development that is acceptable to the department.

All areas where soil concentrations are above the screening levels presented earlier will be covered with a physical barrier that eliminate contact by terrestrial ecological receptors. The preliminary cleanup levels (PCULs) for the soil and groundwater COCs are summarized in Table 13.

9.1.2 Groundwater Preliminary Cleanup Levels

Standards applicable to groundwater COCs include federal and state drinking water standards (MCLs and federal MCL Goals, which are Groundwater ARARs in the CLARC Database) and Equations 720-1 and 720-2 under WAC 173-340-720(4) (standard MTCA Method B equations, which were used to calculate MTCA Method B standard formula values (SFVs) in the CLARC Database). For those COCs with MCLs, the federal and state primary MCLs are identical.

Following is a summary of the groundwater PCUL identification steps:

- 1. For each COC with a federal or state primary MCL:
 - a) That MCL was selected as the initial standard (WAC 173-340-705(2)(a) and 720(4)(b)(i)).
 - b) If substituting the MCL as the groundwater PCUL and solving Equation 720-1 for HQ resulted in HQ greater than 1, the standard was revised to make the HQ less than or equal to 1 (WAC 173-340-705(5)).
 - c) If substituting the MCL as the groundwater PCUL and solving Equation 720-2 for risk resulted in excess cancer risk greater than 1×10^{-5} , the standard was revised to make the risk less than or equal to 1×10^{-5} (WAC 173-340-705(5)).
- 2. If no MCL was available for a COC, then the MTCA Method B groundwater SFVs were used as the standard.

MCLs and MTCA Method B groundwater SFVs used in the PCUL development process were available from the CLARC Database, which was updated in June 2012. The PCULs for the soil and groundwater COCs are summarized in Table 13.

9.2 LANDFILL CLEANUP STANDARD ANALYSIS

9.2.1 Soil Cleanup Standards

COC concentrations in soil were compared to the PCULs developed for the facility. A discussion of each COC and the relationship to the PCUL are discussed below:

- The toxicity equivalency for Carcinogenic Polyaromatic Hydrocarbons (cPAHs) as equivalent to benzo(a)pyrene were calculated and were compared to the PCUL for benzo(a)pyrene. Detections were noted in borings I-P1 and WH-P1at depths of 4 feet bgs. Detections were also noted in WSP Landfill test pits TP-3, TP-5, TP-10, and TP-16 at depths of 7 to 15 feet bgs. The total toxicity equivalencies for benzo(a)pyrene ranged from 0.060 mg/kg to 0.110 mg/kg. The total toxicity equivalency detections for benzo(a)pyrene did not exceed the cleanup level of 0.14 mg/kg in any soil samples collected.
- Gasoline Range Organics (GRO) detections were noted in the boring for MW-10 and WSP Landfill test pits TP-3 and TP-16 at depths of 6, 7, and 12 feet bgs, respectively. The GRO detections ranged from 11 mg/kg to 140 mg/kg. The GRO detections exceeded the cleanup level of 100 mg/kg in the boring for MW-10 with a value of 140 mg/kg at a depth of 6 feet bgs.
- Lead detections were noted in the borings for MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13; boring WH-P1 and PH-P1; and WSP Landfill test pits TP-3, TP-5, TP-8, TP-10, and TP-16 at depths ranging from 4 to 15 feet bgs. The

lead detections ranged from 7.6 mg/kg to 940 mg/kg. The lead detections exceeded the cleanup level of 250 mg/kg in the WSP Landfill test pit TP-8 with a value of 940 mg/kg at a depth of 10 feet bgs.

• PCE detections were noted in borings GP13, I-P6, I-P9, MP-P1, WH-P1 and WSP Landfill test pits TP-3 and TP-10 at depths ranging from 3 to 15 feet bgs. The PCE detections ranged from 0.0025 mg/kg to 12 mg/kg. The PCE detections did not exceed the cleanup level of 476.2 mg/kg in any soil samples collected.

Based on the analysis above GRO and lead are the COCs with concentrations that have exceeded the preliminary cleanup levels for the Site. Therefore, the feasibility study will address the occurrence of GRO and lead concentrations above PCULs within soil.

9.2.2 Groundwater Cleanup Standards

COC concentrations in groundwater within the CPOC were compared to the PCULs developed for the facility. A discussion of each COC and the relationship to the PCUL are discussed below:

- The toxicity equivalency for cPAHs as equivalent to benzo(a)pyrene were calculated and were compared to the PCUL for benzo(a)pyrene. Detections were noted in wells MW-2, MW-3, MW-5, MW-6, MW-9, MW-13, and MW-14 since 2010. Detections were also noted in Sudbury Landfill monitoring wells SLF-9 and SLF-10. The total toxicity equivalencies for benzo(a)pyrene have ranged from 0.0073 µg/l to 0.0656 µg/l. The total toxicity equivalency detections for benzo(a)pyrene have not exceeded the cleanup level of 0.12 µg/l at the Site since monitoring began.
- Manganese detections were noted in all monitoring wells except MW-5 and SLF-10 since 1998. The manganese detections have ranged from 11 µg/l to 35,000 µg/l. The detections of manganese have not exceeded the cleanup level of 2,200 µg/l in any monitoring wells since October 2010. The detections of manganese exceeded the cleanup level in wells MW-6, MW-7, and MW-8 once each prior to October 2010. The range of detections above the PCUL was 2,400 µg/l (MW-6; 10/26/2010) to 35,000 µg/l (MW-8; 7/29/2010).
- PCE detections were noted in monitoring wells MW-5, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, SLF-7, SLF-9, and SLF-10 since 1998. The PCE detections have ranged from 0.13 μg/l to 5.3 μg/l. The detections of PCE have exceeded the cleanup level of 5 μg/l within monitoring well MW-5 only once. That exceedance was during the July 2010 monitoring event. Subsequent monitoring in MW-5 (5 events) yielded no PCE concentration above 5 μg/l.
- Trichloroethylene (TCE) detections were noted in monitoring wells MW-1, MW-2, MW-3, MW-4, MW-8, MW-9, MW-10, MW-11, MW-12, MW-14, and SLF-9 since 1998. The TCE detections have ranged from 0.32 µg/l to 6.56 µg/l. The detections of TCE have exceeded the cleanup level of 4 µg/l within monitoring wells MW-2, MW-3, and MW-4 since monitoring began. No TCE concentration above 4 µg/l has been detected at the site since 1999.

Based on the analysis above, no COCs have exceeded the PCULs concentrations within the past year. Therefore, the feasibility study will not address groundwater.

9.3 POINT OF COMPLIANCE

WAC 173-340-200 defines "Point of Compliance" (POC) as the point or points where cleanup levels established in accordance with WAC 173-340-720 through 173-340-760 shall be attained.

WAC 173-340-740(6) defines the standard soil POC based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway as the soils throughout the site from the ground surface to 15 feet below the ground surface. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities. This also corresponds to the POC for terrestrial ecological receptors. However, in accordance with WAC 173-340-740(6)(f), since the Landfill was allowed to contain hazardous substances the site may comply with cleanup standards provided:

- (i) The selected remedy is permanent to the maximum extent practicable using the procedures in WAC 173-340-360;
- (ii) The cleanup action is protective of human health;
- (iii) The cleanup action is demonstrated to be protective of terrestrial ecological receptors under WAC 173-340-7490 through 173-340-7494;
- (iv) Institutional controls are put in place under WAC 173-340-440 that prohibit or limit activities that could interfere with the long-term integrity of the containment system;
- (v) Compliance monitoring under WAC 173-340-410 and periodic reviews under WAC 173-340-430 are designed to ensure the long-term integrity of the containment system; and
- (vi) The types, levels and amount of hazardous substances remaining on-site and the measures that will be used to prevent migration and contact with those substances are specified in the draft cleanup action plan.

10. TECHNOLOGY IDENTIFICATION AND SCREENING

In the following sections, cleanup action alternatives are developed from cleanup technologies to meet the goals of the cleanup in accordance with MTCA requirements and guidelines. The process of developing cleanup action alternatives begins with a broad overview of all types of cleanup technologies. The list of technologies is given a cursory screening to eliminate any technologies that do not apply to the COCs or site-specific conditions. The technologies are then given a more comprehensive screening before being retained or rejected. The retained technologies are then combined to create a range of alternatives that represent various approaches to achieving the cleanup action objectives (CAOs).

10.1 CLEANUP ACTION OBJECTIVES

The following CAOs have been established for the cleanup action alternatives:

- Reduce or eliminate human exposure with contaminated soil that exceed preliminary cleanup levels.
- Reduce or eliminate risks to ecological receptors from contaminated soil that exceed preliminary cleanup levels.
- Use permanent solutions to the maximum extent practicable (which includes consideration of cost-effectiveness).

10.2 TECHNOLOGY SCREENING CRITERIA

Three criteria were established to screen the potential cleanup technologies identified for the Site. These include (in order of application):

- **Technical Feasibility**: Engineering factors related to the ability of the technology to function effectively and achieve meaningful progress toward the CAOs, based on site-specific characteristics, including the nature and extent of indicator chemicals, waste/source type and locations, site hydrogeology, and time required to achieve preliminary cleanup levels.
- **Implementability**: Administrative issues related to the technology, including government regulatory approvals, construction schedule, constructability, access, monitoring, operation and maintenance, and community concerns.
- **Cost**: The relative cost of the technology, including initial capital and future annual operating, maintenance, and monitoring costs, compared to other similarly applied technologies is a component of the screening process. However, since this screening presents a preliminary view of the cleanup technologies, costs were not evaluated quantitatively but were evaluated relative to each similar technology.

The goal of the screening process is to select the most practicable technologies from among each category of similar technologies.

10.3 TECHNOLOGY SCREENING

This section presents the results of the technology screening process. A comprehensive list of relevant technologies was developed using professional knowledge and judgment, experience, and screening information prepared by the EPA, Center for Public Environmental

Oversight (CPEO), and other organizations for sites across the United States. The results of the screening evaluation are summarized in Table 14. The retained technologies are described in further detail below in relation to the specific medium of concern, site-specific characteristics, and potential application of the retained technologies. The retained technologies shown in Table 14 result from several factors: qualitatively evaluating the potential technologies based on screening information prepared by EPA, CPEO, and other organizations for sites across the United States; using the screening criteria listed above; and are ultimately based on the experiences gained at similar sites as well as professional knowledge and judgment. Below are more complete descriptions of the retained technologies and their applicability to the Site. Long-term monitoring would be conducted in conjunction with all cleanup action alternatives.

10.3.1 Land Use Controls

Land use controls provide protection from exposure to soil through the use of non-engineered or legal controls that limit land or resource use, such as access controls and property restrictions. Although land use controls provide no reduction of toxicity, volume, or mobility of contaminants, they can reduce or eliminate direct exposure pathways and resultant risk. Land use controls are usually most effective when used in combination with other measures, such as source removal, containment, and monitored natural attenuation.

For soil, land use controls could potentially include both engineering controls and institutional controls (ITRC 2008). Engineering controls could include signage and fencing providing warning and deterrence of exposure to soils impacted with contaminants above preliminary cleanup levels. Cleanups with engineering controls involve ongoing evaluation, site inspections, periodic repairs, and sometimes replacement of remedy components.

Institutional controls are non-engineered instruments, such as administrative and/or legal controls intended to minimize the potential for human exposure to contamination by limiting land or resource use. Institutional controls may be used to supplement engineering controls to ensure their ongoing effectiveness, or they may be selected as a stand-alone response. Institutional controls can be divided into four categories: governmental controls, proprietary controls, enforcement and permit tools with institutional control components, and informational devices. Current regulations restrict installation of water wells within 1,000 feet of a landfill (WAC 173-160-171(3)(a)(vi)). Each of these four institutional controls may be used at the Site for limiting exposure to soil.

10.3.2 Soils

Two technologies applicable to contaminated soils at the Site were retained. The retained technologies include:

- In Situ Biological Treatment: Monitored Natural Attenuation.
- Containment: Landfill Capping using either:
 - Geosynthetic Cover; or
 - Low Permeability Soil or Asphalt Cover
 - Permeable Soil Cover

10.3.2.1 In Situ Biological Treatment: Monitored Natural Attenuation

Monitored natural attenuation (MNA) is feasible for soil. The natural attenuation processes include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or

concentration of contaminants in soil. These in situ processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants. Periodic monitoring is necessary to demonstrate that contaminant concentrations continue to decrease at a rate sufficient to ensure that they do not become a health threat.

According to Washington State Model Toxics Control Act (MTCA) as described under WAC 173-340-370(7), natural attenuation as a remediation alternative is most appropriate for sites with the following characteristics:

- Source control has been conducted to the maximum extent practicable;
- Leaving contaminants on-site during the restoration time frame does not pose an unacceptable threat to human health or the environment;
- There is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the Site; and
- Appropriate monitoring is conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected.

MNA could be applied to the various areas of soil at the facility which contain soil contamination above PCULs. However, MNA would only be applied for soil at the facility if other cleanup technologies including land use controls and/or low permeability caps were used to limit exposure and minimize the migration of contaminants within the soil.

10.3.2.2 Containment: Landfill Capping

Landfill capping is a containment technology that forms a barrier between the contaminated media and the surface, thereby shielding humans and the environment from the harmful effects of its contents and perhaps limiting the migration of the contents. Cap design ranges from low permeability geomembrane designs that reduce over 99% of infiltration to more permeable soil coves. The cap design should be selected based on the necessity to reduce infiltration into the contaminated subsurface to reduce the potential for contaminants to leach from the Site. Water allowed to seep through the barrier and saturate the contaminated soil ultimately flows into groundwater and contaminating the groundwater with the contaminants found in the soil.

Landfill capping does not lessen the toxicity, mobility, or volume of contaminants, but they do limit migration. They are most effective where most of the underlying soil is above the water table. Cap integrity must not be compromised by present and/or future land use activities and institutional controls are often required to protect the cap.

Three methods for landfill capping are considered applicable to contaminated soils at the site and include:

• Low permeability caps composed of a combination of a geomembrane (typically HDPE or PVC) and/or a low permeability soil layer. These cap systems typically reduce contaminant migration to a fraction of 1 percent of the pre-capping contaminant migration. A low permeability cap designed in accordance with current landfill regulations (WAC 173-351) could be used at the WSP Landfill to reduce or eliminate surface precipitation and stormwater run on from infiltrating through the refuse contained within the landfill. Also, low permeability caps consisting of asphalt or concrete could be used in other areas of the facility where soil contamination exists above soil preliminary cleanup levels.

- Low permeability soil caps, which are typically composed of a layer of engineered low permeability soil placed over the waste, graded to create positive drainage and planted with grasses to reduce erosion and aide in evapotranspiration. With these caps, infiltration is reduced through the water holding properties of soils and evapotranspiration. Depending on weather patterns and topography, it is possible to devise landfill covers that meet the requirements for remediation but contain no lowpermeability geomembrane barrier layer. These covers usually employ a layer of soil on top of the landfill where grass, shrubs, or trees grow for the purpose of controlling erosion and removing water from the soil. These cap systems provide a barrier, however, are less effect on reducing infiltration. A low permeable soil cap designed based on landfill closure regulations that were effective at the time the facility stopped receiving wastes (WAC 173-304) could be effective in providing a direct contact barrier and reducing infiltration. Its effectiveness is enhanced because of the absence of groundwater contamination and arid conditions at the WSP.
- Permeable soil covers, which typically consist locally obtained, unimproved soil, provide only a barrier to direct contact with the waste and through grading eliminate low spots within the landfill cover that collect water and focus infiltration. Permeable soil covers are typically planted with vegetation to address erosion concerns and enhance evapotranspiration. A permeable soil cover is currently in place at the WSP landfill and considering the absence of groundwater contamination appears to be effective in reducing the migration of contaminants from soil and waste to groundwater. Improving areas of the WSP Landfill where waste is exposed at the surface and where surface water run-off is collecting in low spots could be effective in providing a direct contact barrier and further reducing some infiltration.

Because of the nature of waste, the absence of leaching potential to groundwater, and the arid environment, the low permeability soil cover and permeable soil cover technologies are considered effective applications for the WSP landfill soil contamination and will be carried forward. Asphalt covers are considered appropriate for other areas with soil contamination and will also be carried forward.

11. CLEANUP ACTION ALTERNATIVES

Considering the nature and extent of contamination, MTCA requirements for selection of cleanup actions (WAC 173-340-360) and the cleanup action technologies retained after screening, the following cleanup action alternatives have been assembled for the soil contamination present at the Site:

- 1. Monitored Natural Attenuation (MNA), Land Use Controls, and improvement to the existing permeable soil cover.
- 2. Low Permeability Soil Cap with Monitored Natural Attenuation and Land Use Controls.
- 3. No Action.

11.1 ALTERNATIVE 1: MNA, LAND USE CONTROLS AND PERMEABLE COVER IMPROVEMENTS

Alternative 1 consists of the following:

- Soils that Exceed PCULs:
 - > MNA.
 - > Land use controls to prevent exposure at the landfill site and areas with soil contamination near Building A50.
 - > Improving the existing soil cap to provide a direct contact barrier, reduce infiltration, and enhance evapotranspiration.
- Decommissioning of Irrigation Well No. 4, and environmental monitoring wells to achieve requirements for WAC 173-160-381.

11.1.1 Description

Alternative 1 would continue source control actions previously completed at WSP. These actions include implementation of best management practices (BMPs) regarding management of chemicals used in the various Correctional Industry activities at WSP. WSP would avoid disturbing contaminated soils, put in place institutional controls to provide protection from direct contact with contaminated soils, improve the existing permeable soil cap at the WSP landfill, and would maintain post closure care at the WSP landfill using Chapter 173-304 WAC as a design guideline. Institutional controls are adequate for the soils near Building A50 due to the contamination above CULs occurring at depth and the existence of clean soils and gravel above the contamination. The clean soils and gravel above the contamination will be maintained while contamination above CULs exists. Further, monitoring wells and Irrigation Well No. 4 will be decommissioned to meet the requirements of WAC 173-160-381.

11.1.1.1 Soil Institutional Controls

Institutional controls in the form of deed restrictions would be implemented for soil where contaminant levels exceed PCULs. The institutional controls would prohibit soil excavation or disturbance within the specified area and depth intervals without prior consultation with Ecology. This would include the landfill area as well as the area surrounding Building A50 where soil contaminants exceed PCULs. For the landfill area, the perimeter of the property, which includes the landfill area is fenced and signed, with access solely through secured

points of entry. Further, the landfill area is a "no access allowed" area and constantly monitored by prison security. The Building A50 soil contamination is within secured areas, completely enclosed with security fencing and constantly patrolled. Signage will be added to this area to identify potential hazards at depth.

The DOC will make use of existing property fencing, signage, and security monitoring as land use controls for the WSP landfill. Annual inspections and repairs as necessary would be conducted to maintain the institutional controls.

Institutional controls in the form of deed restrictions would be implemented for the WSP Landfill. The deed restrictions would contain the following restrictions:

- Activities that disturb the soil and gravel cover near Building A50 are prohibited.
- Activities that disturb the landfill soil cover or waste are prohibited (e.g., vehicle travel, livestock access, etc.).
- Modification of the existing stormwater drainage facilities at the WSP Landfill are prohibited without prior consultation with Ecology.
- A negative easement for the WSP Landfill would limit the use of the property.

11.1.1.2 Soil Monitored Natural Attenuation

Monitoring of soils would be completed as follows:

• Concentrations of COCs in subsurface soils would be assessed if excavation activities took place within the areas where contamination exists above PCULs.

11.1.1.3 Decommissioning of Irrigation Well No. 4 and Groundwater Monitoring Wells

Irrigation Well No. 4 will be decommissioned in accordance with WAC 173-160-381 (1) (a) as follows:

- Remove debris and accumulated sediment from the well bore to the extent feasible, using an appropriate drilling method. Dispose of removed materials per applicable regulations.
- Survey the well with a downhole TV camera to evaluate the condition and depth intervals of the well casings.
- Seal the open bedrock borehole (525 feet to 1,004 feet); allow grout to set.
- Perforate and pressure-grout the 16-inch-diameter casing (383 feet to 525 feet).
- Perforate and pressure-grout the 20-inch-diameter casing (290 feet to 383 feet).
- Perforate and pressure-grout the 24-inch-diameter casing (5 feet to 290 feet).
- Seal the upper casing with cement (0 feet to 5 feet).
- Document the coordinates of the well by a licensed surveyor.
- Submit the well decommissioning report to Ecology.

The 14 groundwater monitoring wells will be decommissioned by perforating the casings to within 5 feet of the surface and pressure grouting and installing concrete surface seals. Coordinates and decommissioning documentation will be submitted to Ecology as required in WAC 173-160.

11.1.1.4 Improve the Existing Permeable Soil Cap

The existing permeable soil cap will be improved and maintained to prevent direct contact with refuse and to reduce infiltration. Soil cap improvements will consist of:

- Adding between six inches and two feet native soil to areas of the existing soil cap to cover refuse and to eliminate low spots and depressions that focus infiltration. The area requiring permeable soil cap improvements is approximately 1.8 acres.
- Establish new native plantings to enhance evapotranspiration.
- Monitor soil cap vegetation and erosion as part of institutional control inspections. Make improvements as needed to address settlement, erosion, and plant mortality.

11.1.2 Cost

Alternative 1 consists of the following items:

- Land Use Engineering Controls including fencing around the WSP Landfill and signage.
- Improving the existing permeable soil cap to cover all exposed waste and reduce depressions that focus infiltration.
- Ongoing maintenance of the land use engineering controls and associated documentation.
- Decommissioning of Irrigation Well No. 4.
- Decommissioning of the 14 groundwater monitoring wells in accordance with Chapter 173-160-381.
- General project management, alternative design, construction oversight, and contingency for Alternative 1 are estimated based on percentages of the estimated construction and O&M costs.

Based on the items above, the total estimated net present value for Alternative 1 is \$443,733. Appendix J contains a detailed breakdown of the estimated costs associated with Alternative 1.

11.2 ALTERNATIVE 2: LANDFILL CAP WITH INSTITUTIONAL CONTROLS

Alternative 2 consists of the following:

- Soils that Exceed PCULs:
 - Landfill capping using a low permeability soil cap and low permeability asphalt cap.
 - > Land use controls to prevent exposure.
- Decommissioning of Irrigation Well No. 4 and 14 groundwater monitoring wells.

11.2.1 Description

Alternative 2 will install a low permeability landfill cap over soils that contain contaminants at concentrations above PCULs (See Figure 15). The cap for the WSP Landfill will consist of an engineered soil cap designed and installed using Chapter 173-304 WAC as a design

guideline. A low permeability soil cap was selected instead of a geomembrane cap because it will provide similar protections for direct contract with waste and groundwater; achieves ARARs, and is less costly to construct and maintain than a geomembrane cap. The low permeability caps for the other areas with soil contaminant concentrations above PCULs will consist of a minimum of 2.5 inches of asphalt overlaying the surface soil. The decommissioning of Irrigation Well No. 4 is identical to Alternative 1.

The WSP Landfill soil cap provides for closure of the existing landfill. The closure area is approximately 8 acres. Generally, this requires excavation/ embankment, grading and compacting subgrade, construction of a landfill cover system, road construction and grading, and stormwater perimeter ditch. The cover system would consist of a 24-inch soil layer on top of the landfill, and an 18-inch side slope layer overlaid with an 8-inch rock armor layer for the sloping areas. All road access would consist of embankment material and crushed surfacing.

The other area to be capped includes approximately 1 acre around Building A50. The low permeability cap at this area will include approximately 6 inches of crushed rock with 2.5-inch thick asphalt. Site preparation for the cap will include excavation of subgrade and installation of stormwater control facilities. The material generated by the subgrade excavation will be used to regrade areas at the WSP Landfill.

11.2.1.1 Institutional Controls

Soil institutional controls for Alternative 2 will be similar to Alternative 1 except the WSP Landfill will be capped with a new low permeability soil cap and the other areas of soil contamination will be capped with asphalt. Annual inspections and repairs as necessary would be conducted to maintain the institutional controls. Groundwater institutional controls for Alternative 2 will be identical to Alternative 1.

11.2.1.2 Monitored Natural Attenuation

Monitoring for natural attenuation of soils for Alternative 2 will be identical to Alternative 1.

11.2.2 Cost

Alternative 2 consists of the following items:

- Land Use Engineering Controls including fencing around the WSP Landfill and signage around all areas of soil contamination above PCULs.
- Soil caps at the WSP Landfill in accordance with Chapter 173-304 WAC and asphalt caps at the other areas where soil contamination exceeds PCULs (See Figure 15).
- Ongoing maintenance of the land use engineering controls and associated documentation.
- Decommissioning of Irrigation Well No. 4.
- Decommissioning of the 14 groundwater monitoring wells in accordance with WAC 173-160-381.
- General project management, alternative design, construction oversight, and contingency for Alternative 2 are estimated based on percentages of the estimated construction and O&M costs.

Based on the items above, the total estimated net present value for Alternative 2 is \$1,900,794. Appendix J contains a detailed breakdown of the estimated costs associated with Alternative 2.

11.3 ALTERNATIVE 3: NO ACTION

Alternative 3 consists of allowing the Site to remain in its present condition with no measures to reduce or monitor soil contamination. The No Action alternative has no related costs.

12. EVALUATION OF CLEANUP ACTION ALTERNATIVES

MTCA established minimum requirements and procedures for selecting cleanup actions in WAC 173-340-360. The minimum requirements include threshold requirements and other requirements discussed below.

12.1 THRESHOLD REQUIREMENTS

MTCA requires that all cleanup actions meet the threshold requirements that are part of the minimum requirements. This section uses the threshold requirements to evaluate the list of three alternatives developed. Under MTCA, cleanup action alternatives must meet the following threshold requirements as defined in WAC 173-340-360(2)(a):

- Protection of human health and the environment.
- Compliance with cleanup standards.
- Compliance with ARARs.
- Provision for compliance monitoring.

Each alternative is evaluated individually against the threshold criteria in the following sections.

12.1.1 Protection of Human Health and the Environment

As a threshold criterion, protection of human health and the environment addresses whether a cleanup action alternative would result in sufficiently low residual risk to human and ecological receptors after completion of the alternative.

Protection of human health and the environment would be unchanged from present conditions for Alternatives 1 and 3 because the contaminated soil would not be remediated; however, under Alternative 1, potential exposures would be reduced because areas with soil contamination above PCULs are either overlain by asphalt or covered by a soil cover and further negated through institutional controls.

Alternative 2 would be protective of human health and the environment because exposures and associated risks to the soils with contaminant concentrations above PCULs would be limited or negated because of the low permeability cap and implementation of institutional controls. However, residual concentrations of the COCs beneath the low permeability caps would remain above regulatory levels.

12.1.2 Compliance with Cleanup Standards

Compliance with cleanup standards is defined by meeting the requirements of WAC 173-340-700 through WAC 173-340-760.

Alternatives 1 and 2 comply with cleanup standards by attaining cleanup levels at the point(s) of compliance within a reasonable period of time and in accordance with WAC 173-340-720(8)(c) and WAC 173-340-740(6)(f). Alternatives 3 potentially allows contact with soils that contain contaminants above PCULs and all three alternatives leave soil contamination with concentrations above PCULs in place.

12.1.3 Compliance with ARARs

Compliance with ARARs for all alternatives requires, in addition to meeting cleanup standards, that the actions also meet location-specific and action-specific state and federal requirements. Alternatives 1 through 3 meet this threshold criterion for soil. However, as discussed above, Alternatives 3 potentially allows contact with soils that contain contaminants above PCULs and all three alternatives leave soil contamination with concentrations above PCULs in place.

12.1.4 Provide for Compliance Monitoring

Compliance monitoring requirements are defined in WAC 173-340-410. Compliance monitoring includes: 1) "protection monitoring" to confirm that human health and the environment are adequately protected during implementation of an alternative; 2) "performance monitoring" to confirm that cleanup standards or other performance standards have been attained; and 3) "conformation monitoring" to monitor the long-term effectiveness of the remedy after completion of the alternative.

Alternatives 1 and 2 would include performance monitoring during cleanup action to evaluate the effectiveness of the treatment and determine that the CAOs had been met. Performance monitoring would be provided during operation and maintenance activities for Alternatives 1 and 2 to determine that either soil MNA is occurring and effective. Compliance monitoring would be a component of any alternative selected as the final remedy for the Site.

12.2 OTHER REQUIREMENTS

In addition to the threshold requirements, WAC 173-340-360(2)(b) requires cleanup actions to meet "other requirements" or "additional requirements" that are part of the minimum requirements for the alternatives. These other requirements include the following:

- Use permanent solutions to the maximum extent practicable including consideration for public concerns.
- Provide for a reasonable restoration time frame.
- Consider additional performance criteria.

12.2.1 Permanent Solutions

This section describes the permanent solutions criteria and compares each of the alternatives regarding the criteria.

12.2.2 Permanent Solutions Criteria

WAC 173-340-360(2)(b)(i) requires, to the maximum extent practicable, the use of permanent solutions. Permanence criteria are further defined in WAC 173-340-360(3).

The determination of "maximum extent practicable" is based on a "disproportionate cost analysis," which evaluates the costs and benefits of the alternatives. Seven criteria are cited in WAC 173-340-360(3)(f) as appropriate to evaluate alternatives for the disproportionate cost analysis determination.

The specified criteria below will be used to evaluate the cleanup action alternatives:

• **Protectiveness**—addresses overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, the time

required to reduce the risk and attain cleanup standards, the on-site and off-site risks resulting from implementation, and improvement of the overall environmental quality. This criterion is derived from the evaluation of the other criteria.

- **Permanence**—addresses the degree to which a cleanup action alternative reduces the inherent toxicity, the ability of contaminants to migrate in the environment, or the quantity of contaminated material.
- **Cost**—used to consider the costs of performing the alternative, including capital, long-term operation and maintenance, monitoring, and institutional costs. Alternative costs are compared on a net present value basis. Known implementation difficulties with quantifiable cost impacts are included in the cost estimates. Table 15 includes a summary of the construction (capital) and yearly O&M costs for the cleanup action alternatives. Detailed cost estimates are located in Appendix J. Costs are available from four sources: the professional opinion of Parametrix's design engineers, quotes requested from remediation firms, published literature, and similar projects. All costs are order-of-magnitude preliminary estimates that will be used to evaluate and compare the alternatives.
- Effectiveness Over the Long-Term—based on the degree of certainty that the alternative will be a success, the long-term reliability, the magnitude of residual risk, and the effectiveness of controls required to manage treatment of residual or remaining waste.
- **Management of Short-Term Risks**—addresses short-term effects on human health and the environment while the alternative is being implemented. The evaluation includes consideration of the following factors:
 - > Risk to Site workers.
 - > Risk to the community.
 - > Risk to the environment (short-term ecological risk).
- **Technical and Administrative Implementability**—addresses the degree of difficulty in implementing the alternative. Implementability issues are important because they address the potential for delays, cost overruns, and failure. Implementability is evaluated by considering the following:
 - Technical Feasibility: Technical feasibility addresses the potential for problems during implementation of the alternative and related uncertainties. The evaluation includes the likelihood of delays due to technical problems and the ease of modifying the alternative, if required.
 - > Availability of Services and Materials: The availability of experienced contractors and personnel, equipment, and materials needed to implement the alternative.
 - > Administrative Feasibility: The degree of difficulty anticipated due to regulatory constraints and the degree of coordination required among various agencies.
 - > Scheduling: The time required until cleanup action would be complete, and any difficulties associated with scheduling.
 - > Complexity and Size: The more complex or larger a cleanup action, the more difficult it is to construct or implement. Sufficient space must be available at the

Site to enable efficient implementation of the alternative in a manner that achieves the specific time constraints.

- Other Considerations: Monitoring requirements, access for construction, operation and maintenance, integration with existing operations, current or potential cleanup action, and other factors were considered in accordance with WAC 173-340-410.
- **Consideration of Public Concerns**—public participation is an integral part of MTCA. Ecology's goal is to provide the public with timely information and meaningful opportunities for participation. This goal is met through a public participation program that includes:
 - > The early planning and development of a site-specific public participation plan.
 - > The provision of public notices.
 - > Public meetings or hearings.
 - > The participation of regional citizen's advisory committees.

12.2.2.1 Permanent Solutions Evaluation

In the following subsections, Alternatives 1 and 2 are evaluated against the permanent solutions criteria. Alternative 3 does not meet all the threshold criteria as required by MTCA and is not carried forward for further analysis.

Protectiveness

Alternatives 1 and 2 meet the goal of protectiveness because they all provide a permanent method of containment and reduce or eliminate exposure pathways. All alternatives leave contaminated soil in place and the alternatives depend on institutional controls to limit exposures.

Permanent Reduction in Toxicity, Mobility, and Volume

Both alternatives provide permanent reduction in the mobility of contaminants in the environment with the installation of the soil cover or low permeability caps; however, the alternatives provide a slightly lesser permanent reduction because the low permeability caps only eliminates water infiltration into the subsurface and has no effect on toxicity or volume of the soil contamination left in place. However, the mobility of contaminants remaining in the soil and the potential for contamination leaching to groundwater is greatly reduced or eliminated with the presence of the caps.

Cost

The costs for all three alternatives are discussed in Section 11 and are summarized in Table 15. The net present value of Alternative 1 is approximately \$443,733. The net present value of Alternative 2 is approximately \$1,900,794. There is no cost associated with Alternative 3.

Long-Term Effectiveness

Both alternatives are effective for soil contamination because containment would effectively reduce or minimize the risks to human health and the environment associated with the contaminants left in place. Institutional controls would be in place to ensure effectiveness of the cleanup action and to minimize exposure scenarios.

Alternative 1 would be less effective over the long-term compared to the other alternative because the residual risk is greater due to contaminated soil being left in place with potential exposure pathways through leaching available for contaminants with concentrations greater than the PCULs.

Alternative 2 would be similar in long-term effectiveness because of the implementation of the low permeability caps.

Management of Short-Term Risks

Short-term risks for implementation of the alternatives are relatively low. Standard construction safety and traffic controls will be needed to provide safe operations. The primary risk to Site workers would be construction accidents during construction activities. Direct exposure to contaminated soil would be limited because the quantity of soil and method of excavation or treatment do not typically require direct worker contact. Any contaminated soil generated during construction activities would be managed in accordance with applicable laws for disposal. Short-term risks would be the least for Alternative 1 because of less construction associated with the alternative.

The increased risk to the community for the alternatives would primarily result from the increased traffic and construction resulting from the cleanup actions. This risk can be controlled through increased traffic control and site security during cleanup action activities.

Short-term risks to the environment would be minimized by acquiring and maintaining compliance with required construction permits. Also, site security and the use of the Site as a penitentiary help to minimize exposures to the environment.

Implementability (Technical and Administrative)

Implementation of construction activities at the WSP would be challenging due to security measures and processes necessary to perform work at the facility. Access restrictions could limit the complete implementation of either alternative.

Alternative 2 is technically and administratively implementable and low permeability soil caps have been used at multiple facilities; however, due to the limited access at the Site and the complexity of the construction compared to Alternative 1, Alternative 2 is less readily implementable than Alternative 1.

Alternative 1 is the most technically and administratively implementable as construction is limited and would occur in areas outside of the secured portions of the WSP.

Consideration of Public Concerns

Ecology prepared a public participation program in accordance with WAC 173-340-410 for the Site. The DOC and Ecology will take into consideration reasonable public comments with respect to the final cleanup action for the soil contamination at the Site.

12.2.3 Reasonable Restoration Time Frame

This section describes each reasonable restoration time frame criterion and compares each of the alternatives regarding the criteria. Alternative 3 does not meet all the threshold criteria as required by MTCA and is not carried forward for further analysis.

12.2.3.1 Reasonable Restoration Time Frame Criteria and Evaluation

Specific requirements and procedures for determining whether a cleanup action provides for a reasonable restoration time frame, as required under WAC 173-340-360(2)(b)(i), are provided in WAC 173-340-360(4). Factors to be considered when determining whether a cleanup action provides for a reasonable restoration time frame and a discussion regarding the alternatives follow:

- Potential risk posed by the Site to human health and the environment—Currently, the only risks posed by the Site are from direct exposure to the contaminated soil or to the occasional worker who may encounter contaminated soil during trenching activities. Due to these risks, Alternative 1 poses the greatest potential risk since a low permeability cap is not included. The majority of the facility is paved thereby reducing the chance of direct exposure to contaminated soil. Procedures can be taken to protect the worker's health during trenching activities.
- Practicability of achieving a shorter restoration time frame—The cleanup time frame is probably greater than 50 years for Alternatives 1 and 2.
- Current and future use of the Site, surrounding area, and associated resources that are or may be affected by releases from the Site—The current use of the Site, surrounding area within the CPOC, and associated resources are not anticipated to change within the foreseeable future. New receptors will not be introduced and further impacts to resources are not anticipated.
- Availability of alternative water supply—An alternative water supply is not necessary for the Site because any water used by current Site occupants comes from the municipal water supply.
- Likely effectiveness and reliability of institutional controls—Institutional controls, including excavation limitations and notifications, will be effective and reliable in preventing contact with the contaminated soil under both alternatives. Reliability of the engineered controls in Alternative 1 (i.e., soil cover) is slightly less because a permeable soil cover is more susceptible to disturbance than an engineered low permeability cap.
- Ability to control and monitor migration of hazardous substances—The migration of contaminants within the soil will be controlled by either alternative.
- Toxicity of hazardous substances at the Site—The toxicity of the contamination at the Site does not warrant a fast restoration time frame. Direct exposure to the contaminated soil is unlikely due to the current and future use of the Site.

Based on consideration of all the sub-criteria associated with the evaluation of the reasonable restoration time frame, as well as the various scenarios associated with the Site, Alternatives 1 and 2 both provide restoration within a reasonable time frame.

12.2.4 Additional Performance Criteria

In addition to meeting the minimum requirements, MTCA provides direction regarding the requirements of alternatives on a number of other performance criteria. These criteria and the performance of the alternatives based on the criteria are described below. Alternative 3 does not meet all the threshold criteria as required by MTCA and is not carried forward for further analysis.

12.2.4.1 Institutional Controls and Financial Assurances

WAC 173-340-360(2)(e) requires cleanup actions to use institutional controls and financial assurances where required under WAC 173-340-440. Alternatives 1 and 2 will require engineering and institutional controls to reduce or eliminate exposures to soil and groundwater contamination above PCULs. Alternative 1 would allow for greater financial assurances to be given due to the less complex nature of the cleanup action and the limited cost as compared to Alternative 2.

12.2.4.2 Release and Migration

Cleanup actions under MTCA (WAC 173-340-360(2)(f)) are required to prevent or minimize present and future releases and migration of hazardous substances in the environment. Alternative 2 prevents the migration of hazardous substances from the soil through the use of caps and containment.

12.2.4.3 Remediation Levels

Cleanup actions under MTCA (WAC 173-340-360(2)(h) that use remediation levels shall meet each of the minimum requirements specified above. Cleanup actions that use a remediation level are required, in part, to conduct a determination that a more permanent cleanup action is not practicable, based on a disproportionate cost analysis and a demonstration that the action is protective of human health and the environment. Remediation levels are not included as part of the implementation of the cleanup action alternatives.

12.3 PREFERRED ALTERNATIVE

Based on the analysis discussed above, Alternative 2, involving land use controls and low permeability caps would be scored as the recommended preferred alternative. Table 16 provides a scoring matrix for the comparison of each alternative. Each criterion is listed with a value of zero through four as the score for each alternative. A score of zero denotes the alternative did not achieve the criterion or the criterion was not applicable to that alternative. A score of four denotes that alternative is the best at conforming to the criterion as compared to the other alternatives.

As shown by Table 16, Alternative 2 more closely matches the evaluation criteria set forth by MTCA; however, based on a disproportional cost analysis, Alternative 1 is the recommended preferred alternative. The incremental degree of benefits of the low permeability caps alternatives is minimal compared to Alternative 1 because the restoration time frame is not substantially decreased. The risks and potential exposure scenarios for human health and the environment associated with Alternative 1 compared to Alternative 2 are minimal and do not justify a greater than four-fold cost differential.

13. REFERENCES

- DOC (Washington State Department of Corrections). 1996. Division of Correctional Industries. Underground storage tank removal and health and safety plan. June 1996.
- DOC. 2009a. Washington State Penitentiary. Washington State Department of Corrections, Walla Walla, WA. Available at http://www.doc.wa.gov/facilities/prison/wsp/default.asp. Accessed May 2009.
- DOC. 2009b. Questions Washington State Penitentiary site cleanup investigation. Letter to Ms. Sandra Treccani of Ecology. May 22, 2009.
- DOC. 2009c. Comments on the draft RI/FS work plan. Unpublished comments from Eric Heinitz (DOC) to Ecology and Environment, Inc. June 2009.
- DOC. 2009d. Underground storage tank closure and site assessment notice. Prepared by NRC Environmental Services. July 31, 2009.
- E&E (Ecology & Environment, Inc.). 2009. Remedial investigation/feasibility study work plan (RI/FS), Washington State Penitentiary, Walla Walla, Washington. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program, Eastern Regional Office, Spokane, Washington. June 2009.
- Ecology (Washington State Department of Ecology). 1992a. Early notice letter, from D. George, Ecology, to B. Johnson, WSP. May 29, 1992.
- Ecology. 1992b. Initial investigation data sheets. Prepared by the Washington State Penitentiary.
- Ecology. 1993. Sudbury Road Landfill-VOC detection in monitoring wells. Memorandum from Bud Musgrove. October 12, 1993.
- Ecology. 1994. Ecology hazardous waste and toxics reduction program inspection report. Prepared for the Washington State Penitentiary. November 1994.
- Ecology. 1995. Site hazard assessment data collection summary sheets for the Washington ranking method–surface water, air, and groundwater routes only. Prepared for the Washington State Penitentiary. April 25, 1995.
- Ecology. 1997. MTCAStat 97 Site Module, calculation of 95% upper confidence limit (UCL).
- Ecology. 1999. Sudbury Road Landfill Site contaminant source identification/assessment report. Prepared under an agreement between Ecology and the U.S. Environmental Protection Agency. June 1999.
- Ecology. 2000. Preliminary assessment Washington State Penitentiary narrative report. Prepared by Phil Leinart, Hydrologist Toxics Cleanup Program, Ecology. October 2000.
- Ecology. 2009a. On-site visit observations. Electronic communication from Sandra Treccani, Ecology, to Steve Siefert, Ecology and Environment, Inc. April 9, 2009.

- Ecology. 2009b. Regulatory and compliance history at WSP. Electronic communication from Sandra Treccani, Ecology, to Steve Siefert, Ecology and Environment, Inc. May 12, 2009.
- Ecology. 2009c. Draft guidance for evaluating soil vapor intrusion in Washington State: investigation and remedial action. Washington State Department of Ecology, Toxics Cleanup Program. Publication No. 09-09-047. October 2009.
- EPA (U.S. Environmental Protection Agency). 1989. Risk assessment guidance for superfund, volume 1, human health evaluation manual (Part A), interim final. Office of Emergency and Remedial Response, Washington, D.C. EPA/540/1-89/002. July 1989.
- EPA. 2002. Office of Solid Waste and Emergency Response (OSWER) draft guidance for evaluating the vapor intrusion to indoor air pathway from groundwater and soils (subsurface vapor intrusion guidance). OSWER. Washington, D.C. EPA530-D-02-004. November 2002.
- EPA. 2004. User's guide for evaluating subsurface vapor intrusion into buildings. Office of Emergency and Remedial Response. Washington, D.C. February 22, 2004.
- GE (General Electric). 1984. PCB appraisal. Conducted by GE for the Department of Corrections. April 2–5, 1984.
- HWA (HWA Geosciences Inc.). 1998. Preliminary hydrogeologic evaluation-construction demolition landfill, Washington State Penitentiary Walla Walla, Washington. Prepared for the Washington State Department of Corrections. September 3, 1998.
- HWA. 2002. Washington State Penitentiary, Phase 2 Soil and Ground Water Investigation, Walla Walla, Washington. Prepared for the Washington State Department of Corrections. June 6, 2002.
- ITRC (Interstate Technology & Regulatory Council). 2008. An overview of land use control management systems. BRNFLD-3. Washington, D.C.: Interstate Technology & Regulatory Council, Brownfields Team. Available at <www.itrcweb.org>.
- Johnson, P.C., Ettinger, R.A. (J&E). 1991. Heuristic model for predicting the intrusion rate of contaminant vapors into buildings. Environmental Science and Technology, 25:1445-1452.
- Loureiro, C.O., Abriola, L.M., Martin, J.E., Sextro, R.G. 1990. Three-dimensional simulation of radon transport into houses with basements under constant negative pressure. Environmental Science and Technology, 24:1338-1348.
- Parametrix. 1995. Closed construction/demolition landfill Washington State Penitentiary Walla Walla, WA. Prepared for the Washington State Department of Corrections. June 23, 1995.
- Parametrix. 2010. Washington State Penitentiary Walla Walla, WA remedial investigation/feasibility study (RI/FS) final work plan. Prepared for the Washington State Department of Corrections. February 2010.
- Parametrix. 2012. Draft Remedial Investigation Feasibility Study (RI/FS) Report. Washington State Penitentiary Walla Walla, WA. Prepared for the Washington State Department of Corrections. April 2012.

- Steinkampf, William C., 1989. Water-quality characteristics of the Columbia Plateau regional aquifer system in parts of Washington, Oregon, and Idaho. Prepared for the Regional Aquifer-System Analysis Program, U.S. Geological Survey Water-Resources Investigation Report 87-4242.
- Weaver, J.M. 2005. Uncertainty and the Johnson-Ettinger Model for vapor intrusion calculations. United States Environmental Protection Agency. EPA/600/R-05/110. September 2005.

Figures



MW-15 SLF-10

I-P9

BASE MAP PROVIDED BY WSP AND © BY GOOGLE EARTH

S:\2009 PROJECTS\2009-138-22 WSP RI FS\CADD\HWA 2009-138.DWG <FIG 1 (2)> Plotted: 3/13/2012 3:54 PM





WASHINGTON STATE PENITENTIARY GROUND WATER MONITORING WELL

TP-1 TEST PIT DESIGNATION AND APPROXIMATE LOCATION

0 IRRIGATION WELL #4 DESIGNATION AND APPROXIMATE LOCATION

HWAGEOSCIENCES INC.

RAWN BY <u>EFK</u> \mathbf{C} WASHINGTON STATE PENITENTIARY TEST PIT LOCATION LANDFILL AREAS CHECK BY VA PROJECT NO. 2009-138-21 Task 100 WALLA WALLA, WASHINGTON DATE 06.23.11

BASE MAP PROVIDED BY WSP AND © BY GOOGLE EARTH



Parametrix DATE: March 19, 2012 FILE: PU2662004PAM07T07-F01



Figure 3 Water Well Inventory Washington State Penitentiary Walla Walla, Washington

SOURCE: WASHINGTON STATE DEPARTMENT OF ECOLOGY


S:\2009 PROJECTS\2009-138-22 WSP RI FS\CADD\HWA 2009-138.DWG <FIG 4> Plotted: 3/5/2012 1:10 Pl



S:\2009 PROJECTS\2009-138-22 WSP RI FS\CADD\HWA 2009-138.DWG <FIG 5> Plotted: 3/5/2012 1:02 PM



S:\2009 PROJECTS\2009-138-22 WSP RI FS\CADD\HWA 2009-138.DWG <FIG -5> Plotted: 3/5/2012 1:01 PM



LEGEND

 \bigcirc

Sudbury Road Landfill Groundwater Monitoring Well

> Washington State Penitentiary Groundwater Monitoring Well

Groundwater Contour

PHOTO SOURCE: 2011 NAIP



Figure 7 July 2010 Groundwater Surface Washington State Penitentiary Walla Walla, Washington



LEGEND

Sudbury Road Landfill Groundwater Monitoring Well

- Groundwater Contour

PHOTO SOURCE: 2011 NAIP





Figure 8 October 2010 Groundwater Surface Washington State Penitentiary Walla Walla, Washington



LEGEND

 \bigcirc

Sudbury Road Landfill Groundwater Monitoring Well

> Washington State Penitentiary Groundwater Monitoring Well

- Groundwater Contour

PHOTO SOURCE: 2011 NAIP



Figure 9 February 2011 Groundwater Surface Washington State Penitentiary Walla Walla, Washington



LEGEND

Sudbury Road Landfill Groundwater Monitoring Well

- Groundwater Contour

PHOTO SOURCE: 2011 NAIP





Figure 10 June 2011 Groundwater Surface Washington State Penitentiary Walla Walla, Washington



LEGEND

 \bigcirc

Sudbury Road Landfill Groundwater Monitoring Well

> Washington State Penitentiary Groundwater Monitoring Well

- Groundwater Contour

PHOTO SOURCE: 2011 NAIP



Figure 11 September 2011 Groundwater Surface Washington State Penitentiary Walla Walla, Washington



LEGEND

 \bigcirc

Sudbury Road Landfill Groundwater Monitoring Well

> Washington State Penitentiary Groundwater Monitoring Well

- Groundwater Contour

PHOTO SOURCE: 2011 NAIP



Figure 12 December 2011 Groundwater Surface Washington State Penitentiary Walla Walla, Washington

MW-2 DATES 7/10 11/10 2/11 6/11 9/2 TPH ND - ND - - - PCE ND ND ND ND ND ND TCE 2.4 2.0 2.0 2.3 2.3 VC 0.72 0.8 0.78 ND - TCPAH 0.0112 - - ND - AS ND ND ND ND ND CR ND ND ND ND ND 3.4	NW-3 1 12/11 - ND 2.0 ND - ND ND ND ND ND - ND - ND - ND ND ND <tr< th=""><th>NW-1 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - - - - PC ND ND ND ND ND ND TPH ND - - - PC ND ND ND ND ND ND TC TC 0.49 0.35 0.32 0.35 0.34 0.52 TC TC TC VC ND <td< th=""><th>WW-9 7/10 11/10 2/11 6/11 9/11 12/11 ND - ND - - - 0.72 0.42 0.76 0.58 0.41 0.33 1.3 1.3 1.1 1.3 1.3 1.3 ND ND ND - - 0.0089 - - ND - ND ND ND ND ND ND 15 ND ND 21</th><th></th></td<></th></tr<>	NW-1 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - - - - PC ND ND ND ND ND ND TPH ND - - - PC ND ND ND ND ND ND TC TC 0.49 0.35 0.32 0.35 0.34 0.52 TC TC TC VC ND ND <td< th=""><th>WW-9 7/10 11/10 2/11 6/11 9/11 12/11 ND - ND - - - 0.72 0.42 0.76 0.58 0.41 0.33 1.3 1.3 1.1 1.3 1.3 1.3 ND ND ND - - 0.0089 - - ND - ND ND ND ND ND ND 15 ND ND 21</th><th></th></td<>	WW-9 7/10 11/10 2/11 6/11 9/11 12/11 ND - ND - - - 0.72 0.42 0.76 0.58 0.41 0.33 1.3 1.3 1.1 1.3 1.3 1.3 ND ND ND - - 0.0089 - - ND - ND ND ND ND ND ND 15 ND ND 21	
		MW-12 DATES 7/10 11/10 2/11 6/11 9/11 12/ TPH ND - ND - - - - PCE 0.94 0.74 0.43 1.0 0.9 YC ND -	MW-5 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - ND - - - PCE 5.3 1.8 1.5 0.79 0.91 1.3 TCE ND ND ND ND - - VC ND ND ND ND - -	
SLF-9 DATES 7/10 11/10 2/11 6/11 12/11 TPH ND - ND - - - PCE 0.52 0.53 0.49 0.43 - - TCE 1.2 1.1 1.2 1.3 - - VC ND ND ND - - - - TCPAH ND - - ND - - -		AS ND ND ND ND ND ND CR 12 69 ND ND 46 4.5	MI ND ND ND ND CR ND 13 11 ND 71 17 MW-8 DATES 7/10 11/10 2/11 6/11 9/11 12/ TPH ND ND ND ND ND ND ND TCE 3.3 1.4 2.5 2.3 2.6 2.3 VC ND ND ND ND ND - - TCPAH ND - - - ND - - CR 75 27 ND ND 9.1 ND	
AS ND ND ND CR ND ND ND	MW-14 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - ND - - - PCE 0.94 0.72 0.86 0.93 0.79 TCE 0.87 0.99 1.0 0.73 0.82 0.75 VC ND ND ND - - - PCE 1.5 1.2 0 TCPAH 0.0326 - - - - - VC ND	V-11 Z/11 0 - - - .92 0.46 1.6 1.9 .59 0.50 0.48 D ND - - D ND ND ND 11 6.2	Image: state	112/11 - ND - ND - ND - ND 12
SLF-7 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - ND - - - PCE ND ND ND ND - - - TCE ND ND ND ND - - - VC ND ND ND -	MW-13 DATES 7/10 11/10 2/11 6/11 9/11 12/11	MW-10 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - ND - - - PCE 0.22 0.21 0.25 ND 0.19 0.13 TCE ND ND ND ND - - ICPAH ND - ND - - - TCPAH ND - - ND - - AS ND ND ND ND ND ND ND CR ND ND ND ND 9.5 6.5 -	MW-7 0 0 11/10	
SLF-10 DATES 7/10 11/10 2/11 6/11 9/11 12/11 TPH ND - ND - - - PCE 0.43 0.39 0.49 0.41 - - TCF ND ND ND - - - -	TPH ND - ND - ND	TPH ND TCE ND VC ND TCPAH ND AS 4.7 CR 43	- ND - - ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND - - - ND ND 14 ND ND 40 ND 14 ND 11/10 Z/TEH 7/10 11/10 Z/11 TPH 140(G) - -	
VC ND ND ND - <td></td> <td></td> <td>PCE ND ND ND ND ND TCE ND ND ND ND ND ND VC ND ND ND ND - ND VC ND ND ND ND ND TCPAH 0.0073 - - ND ND AS ND ND ND ND ND CR ND ND ND ND ND</td> <td>> ND > ND - - 2 ND D ND</td>			PCE ND ND ND ND ND TCE ND ND ND ND ND ND VC ND ND ND ND - ND VC ND ND ND ND ND TCPAH 0.0073 - - ND ND AS ND ND ND ND ND CR ND ND ND ND ND	> ND > ND - - 2 ND D ND

SCALE IN FEET

LEGEND

- Sudbury Road Landfill Groundwater Monitoring Well \bigoplus
- Washington State Penitentiary Groundwater Monitoring Well \bigcirc
- TPH = Total Petroleum Hydrocarbons: (G)asoline; (D)iesel; (O)il PCE = Tetrachloroethene
- TCE = Trichloroethene
- VC = Vinyl Chloride TCPAH = Carcinogenic PAH by toxic equivalency factor method, per Method A guidance AS = Arsenic
 - CR = Chromium
 - ND = Not detected above laboratory reporting limit

- = Parameter not analyzed = Exceeds Screening Level

Figure 13 Groundwater Results Washington State Penitentiary Walla Walla, Washington



Parametrix DATE: November 15, 2012 FILE: SU2662004-FIG 13

т			т					Т			Т		
]]]]] ———]]——]	
\rightarrow \rightarrow	→	\rightarrow	→	→	→∣	→	\rightarrow	\rightarrow	→	→	→[→	
0 0 0	X	0	0	0	0	X	0	Х	X	0	0	0	CURRENT/FUTURE INDOOR WORKER
X X O	X	0	0	0	Х	0	0	0	0	0	Х	0	NON-INTRUSIVE CURRENT/FUTURE OUTDOOR WORKER
X X O	Х	0	Х	Х	Х	0	0	0	0	0	Х	0	INTRUSIVE CURRENT/FUTURE OUTDOOR WORKER
X X O	Х	0	0	0	Х	X	0	Х	Х	0	Х	0	CURRENT/FUTURE SITE VISITOR OR RESIDENCE
X X X X	Х	Х	Х	Х	Х	0	0	0	0	Х	Х	Х	ECOLOGICAL- PLANTS
X X X X	X	Х	Х	X	Х	X	0	0	0	Х	Х	Х	ECOLOGICAL - ANIMALS

Figure 14 Conceptual Site Model Washington State Department of Corrections WSP RI/FS



SCALE IN FEET

LEGEND

- Sudbury Road Landfill Groundwater Monitoring Well
- Washington State Penitentiary Groundwater Monitoring Well \bigcirc
- TPH = Total Petroleum Hydrocarbons: (G)asoline; (D)iesel; (O)il PCE = Tetrachloroethene

- PCE = Tetrachloroethene
 TCE = Trichloroethene
 VC = Vinyl Chloride
 TCPAH = Carcinogenic PAH by toxic equivalency factor method, per Method A guidance
 AS = Arsenic
 CR = Chromium

 - ND = Not detected above laboratory reporting limit



Figure 15 Alternative 2 Washington State Penitentiary Walla Walla, Washington

Tables

					Well ID					MW-1									MW-2				
					Date Sampled	2/18/98	7/14/98 S	ept/Oct 99	7/12/10	10/25/10	2/7/11	6/20/11	9/19/11	12/13/11	2/18/98	7/14/98	Sept/Oct 99	7/12/10	10/25/10	2/7/11	6/20/11	9/19/11	12/13/11
	-		Screening	Levels		2/10/00																	
ANALYTE			g	WA	WA																		
		MTCA A	А МТСАВ	Primary	Secondary																		
	Units	Level	Level	MCLs ³	MCLs ³																		
	MC ¹																						
Gasoline Bange Organics	10/	800/1000	- *ר	-					100 11		100 11							100 11		100 11			
Diesel Bange Organics	µg/1	500	-	-					0.27 11		0.26 111							0.26 11		0.26 111			
Luba Oil Banga Organica	µg/1	500	-	-	-				0.42 11		0.20 00							0.20 0		0.20 00			
Lube Oil Range Organics	μg/i	500	-	-	-				0.43 0		0.42 00							0.42 0		0.41 00			
		-	0.050	10					0.0 11	0.0 11			50.11	50.11				0.0 11	0.0 11			50.11	50 11
Arsenic	µg/i	5	0.058	10	-				3.3 U	3.3 U			5.0 0	5.0 0				3.3 U	3.3 U			5.0 0	5.0 0
Chromium	µg/i	50	-	100	-				11 U	11 0			12	2.0 0				11 U	11 U			3.4	2.0 0
Copper	µg/I	-	6,400	1,300	-				11 U	11 U								11 U	11 U				
Lead	µg/l	15	-	15	-					1.1 U			2.0 U	2.0 U					1.1 U			2.0 U	2.0 U
Manganese	µg/l	-	2,200	-	50				11 U	11 U								11 U	11 U				
DISSOLVED METALS ¹																							
Chromium	μg/l	50	-	100	-	1 U	1 U	1.50	10 U	10 U	10 U	10 U			1.3	1.6	1.50	10 U	10 U	10 U	10 U		
Copper	μg/l	-	6,400	1,300	-	2.6	3	0.220	10 U	10 U	10 U	10 U			1 U	3.5	2.00 U	10 U	10 U	10 U	10 U		
Lead	μq/l	15	-	15		1 U	1 U	1.00 U		1.0 U	1.0 U	1.0 U			1 U	1 U	1.00 U		1.0 U	1.0 U	1.0 U		
Manganese	μα/l	-	2,200	-	50	105	10.0 U	10.0 U	10 U	10 U	11 U	10 U			68	10.0 U	10.0 U	10 U	10 U	11 U	10 U		
Mercury	ua/l	2	-	2	-	0.5 U	0.25	0.20 U	0.50 U	0.50 U	0.50 U	0.50 U		0.20 U	0.5 U	0.2 U	0.20 U						0.20 U
Nickel	ua/l		-	100	-	3.6	17	200 11							2.3	3.3	2 00						
Selenium	µg/1	_	80	50	_	2.6	3 11	2.00 0							1 11	1 1	1.00 11						
Zino	µg/1	-	4 900	5 000	5 000	2.0	50	7 70							5 11	7.2	5.60 11						
	µg/i	-	4,600	5,000	5,000	5	5.9	7.70							5 0	1.2	5.60 U						
VOLATILE ORGANIC COMPOUNDS'			0.000	•					0.00 11	0.00	0.00	0.00						0.00	0.00 11	0.00	0.00		
Vinyi Chioride	μg/i	0.2	0.029	2	-				0.20 0	0.20 0	0.20 0	0.20 0						0.20 0	0.20 0	0.20 0	0.20 0		
Chloroform	µg/i	-	80	80	-			1 U	0.25	0.20	0.20 0	0.24				1.00**	1 U	0.72	0.8	0.78	0.89		
Trichloroethene (TCE)	µg/l	5	2.4	5	-	1.73**	1.92	1.10	0.49	0.35	0.32	0.35	0.34	0.52	5.72	6.45	4.84	2.4	2.0	2.0	2.3	2.3	2.0
Toluene	µg/l	1000			-				1.0 U	1.0 U	1.0 U	1.0 U						1.0 U	1.0 U	1.0 U	1.0 U		
Tetrachloroethene (PCE) *	μg/l	5	0.081	5	-			1 U	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U			1 U	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U
sec-Butylbenzene	μg/l	-	-	-	-				0.20 U	0.20 U	0.20 U	0.20 U						0.20 U	0.20 U	0.20 U	0.20 U		
Naphthalene	μg/l	160	160	-	-				1.0 U	1.0 U	1.0 U	1.0 U						1.0 U	1.0 U	1.0 U	1.0 U		
1,1,1-Trichloroethane	μg/l	200	1,600	200	-				0.20 U	0.20 U	0.20 U	0.20 U						0.20 U	0.20 U	0.20 U	0.20 U		
POLYCYCLIC ABOMATIC HYDROCARBO	DNS ¹																						
1-Methvinaphthalene	ua/l		-	-	-				0.096 U		0.096 UJ							0.097 U		0.096 UJ			
Acenaphthene	ua/l	-	960	-	-				0.096 U		0.096 U.I							0.097 []		0.096 U.I			
Fluorene	ug/l		640	-					0.096 11		0.096 111							0.097 11		0.096 111			
Phenanthrene	µg/1	_	040	_	_				0.006 11		0.096 111							0.007 11		0.096 111			
Ponzo(a hi)pon/ono	µg/i			_					0.000 0		0.0006 111							0.007 11		0.000 00			
Benzo(g) opthropopot	µg/1		0 12		-				0.0006 U		0.0000 00							0.0037 0		0.0006 111			
Chrisopo*	μg/1	-	10	-	-				0.0090 U		0.0090 00							0.017		0.0090 00			
Chrysene Danas (h) five reactions at	μg/i	-	12	-	-				0.0096 U		0.0096 00							0.023		0.0096 00			
Benzo(b)iluoranthene	µg/i	-	0.12	-	-				0.0096 0		0.0096 00							0.020		0.0096 0J			
Benzo(k)fluoranthene*	µg/I	-	1.2		-				0.0096 U		0.0096 UJ							0.014		0.0096 UJ			
Benzo(a)pyrene*	µg/l	0.1	0.012	0.0002	-				0.0096 U		0.0096 UJ							0.0097 U		0.0096 UJ			
Indeno(1,2,3-cd)pyrene*	µg/I	-	0.12	-	-				0.0096 U		0.0096 UJ							0.0097 U		0.0096 UJ			
Dibenzo(a,h)anthracene*	µg/l	-	0.12	-	-				0.0096 U		0.0096 UJ							0.0097 U		0.0096 UJ			
Total cPAHs as Benzo(a)pyrene ²	μg/l	0.1	0.012	-	-				0.0072 U		0.0072 UJ							0.0112		0.0072 UJ			
CONVENTIONALS																							
Calcuim	mg/l	-	-	-	-				95	99	150	130						67	66	71	71		
Magnesium	mg/l	-	-	-	-				37									28					
Sodium	mg/l	-	-	-	20				20	20	21	25						21	19	21	20		
Total Dissolved Solids	mg/l	-	-	-	500	570	475	535	560 J						376	418	375	440 J					
Total Organic Carbon	mg/l		-	-	-	3 U	3 U	3.94							3 U	3 U	3.0 U						
Ammonia	ma/l		-	-	-	1.5	0.1 U	0.100 U		0.050 U	0.050 U	0.70			0.1 U	0.1 U	0.131		0.050 U	0.050 U	0.34		
Nitrate	ma/l	-	-	10	-	18.3	15.0	16.2	15	15	20 .1	22			13.6	13.9	12.2	15 .1	14	16	15		
Nitrite	ma/l	-	-	1		0.1 11	0.1 11	0.100 11							0.1 11	0.1 11	0.100 11						
Total Alkalinity	ma/l	_	_		_	328	249	317	330 1	410	380	430			223	204	207	240 1	250	240	250		
Sulfato	ma/l			_	250	60.2	29.0	41.2	18	410	54	72			21.4	21 1	22.0	240 0	230	240	230		
Chlorido	mg/l				250	51.6	36.0	41.3	40	44	54	12			27.6	25.1	10.7	24	22	25	20		
Corbonate Alkelinity	mg/l	-	-	-	200	51.6	30.3	30.3							27.0	20.1	19./						
Dissubarasta Alkalinity	mg/l	-	-	-	-	10 0	10 0	10.0 0	20						10 0	10 0	10.0 U						
Bicarbonate Alkalinity	mg/l	-	-	-	-	328	249	317							223	204	207						
FIELD PARAMETERS	-																						
pH	S.U.	-	-	-	-	7.80	6.10	7.10	6.57	6.58	6.61	6.80	6.51		7.80	6.60	7.50	6.95	6.95	7.02	7.26	6.64	
Conductivity	μS/cr	n -	-	-	-	1210	1190	200	892	1080	1280	1210	820.0		790	1040	430	685	828	842	900	625	
Dissolved Oxygen	mg/l	-	-	-	-	NC	NC	NC	4.36	8.98	4.68	6.95	5.27		NC	NC	NC	7.40	8.77	8.36	10.03	7.64	
Temperature	°C	-	-	-	-	14	17	13	18.55	17.70	15.77	19.29	21.17		13	15	16	16.49	18.2	15.94	18.79	18.69	
Turbidity	NTU	-	-	-	-	NC	NC	NC	NC	49.8	0	227	32.8		NC	NC	NC	NC	6.5	0	51.7	90	
Oxidation Reduction Potential	mV	-	-	-	-	NC	NC	NC	144	229	50	74	89		NC	NC	NC	126	192	41	53	86	

Notes:

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

 * 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene.
 ** Parameter in initial sample not detected. Duplicate result presented.
 ¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an Q = the commended statement of the statement of

UJ = practical quantitation limit. Sample

°C Degrees celcius.

mg/l = Milligrams per liter.

μS/m = Microsiemens per meter. mV = Millivolts.

S.U. Standard units. µg/l = micrograms per liter.

NTU = Nephelometric tubidity unit.

					Well ID					MW-3			-			MW-4					MW-5			
				D	ate Sampled	2/18/98	7/14/98	Sept/Oct 99	7/13/10	10/25/10	2/7/11	6/20/11	9/19/11	12/13/11	2/1/98	7/1/98	Sept/Oct 99	Sept/Oct 99	7/16/10	10/27/10	2/9/11	6/22/11	9/20/11	12/14/11
			Screening	Levels																				
ANALYTE			v	WA	WA																			
		MTCA A	MTCA B	Primary	Secondary																			
	Units	s Level	Level	MCLs ³	MCLs ³																			
POLYCYCLIC AROMATIC HYDROCARB	ONS ¹																							
Gasoline Range Organics	μg/l	800/1000	* -	-	-				100 U		100 U								100 U		100 U			
Diesel Range Organics	μg/l	500	-	-	-				0.26 U		0.26 UJ								0.27 U		0.26 U			
Lube Oil Range Organics	μg/l	500	-	-	-				0.42 U		0.41 UJ								0.43 U		0.42 U			
TOTAL METALS ²		_																						
Arsenic	μg/l	5	0.058	10	-				3.3 U	3.3 U			5.0 U	5.0 U					3.3 U	3.3 U			5.0 U	5.0 U
Chromium	μg/l	50	-	100	-				11 U	16			13	2.2					11 U	13			71	17
Copper	μg/l	-	6,400	1,300	-				11 U	11 U									11 U	11 U				
Lead	μg/I	15	-	15	-					1.1 U			2.0 0	2.0 U						1.1 U			2.0 U	2.0 U
Manganese	μg/i	-	2,200	-	50				27	40									32	29				
DISSOLVED METALS		50		400			10	4 50	40.11	10 11	10 11	10 11			10		0.00	0.40.1	40.11	10.11		10 11		
Chromium	µg/i	50	-	100	-	1 0	1.3	1.50	10 U	10 U	10 U	10 U			1.3	1.5	2.00	2.10 J	10 U	10 U	11	10 U		
Copper	µg/i	-	6,400	1,300	-	1 0	2.6	2.00 U	10 U	10 0	10 0	10 0			2.6	2.4	2.00	2.00 J	10 U	10 U	10 U	10 U		
Lead	µg/i	15	-	15	50	107	100	J 1.00 U	10 11	1.0 U	1.0 U	1.0 0			1 0	100	1.000	1.00 J	10 11	1.0 U	1.0 0	1.0 U		
Manganese	μg/i	-	2,200	-	50	0.5 11	10.0 0		10 0	10 0	11 0	10 0		0.00 11		10.0 C	0.21.0	31.0 J	10 0	10 0	11 0	10 0		0.00 11
Niekol	μg/i	2	-	100	-	0.5 0	0.2 0	2 00 11						0.20 0	0.5 0	17	2.40	0.20 J						0.20 0
Solonium	μg/i	-	- 00	50	-	2.1	3.4	2.00 0							2.3	1.7	1.0011	1.00						
Zino	µg/i		4 900	5 000	5 000	62	1.4	5.40 11							62	5.7	12.00	5.00 J						
	μy/i		4,000	5,000	5,000	0.5	5	5.40 0							0.5	5.7	42.5	5.00						
VOLATILE ORGANIC COMPOUNDS	ua/l	0.2	0 020	2	_				0.20 11	0.20 11	0.20 11	0.20 11							0.20 11	0.20 11	0.20 11	0.20 11		
Chloroform	μg/i μg/l	- 0.2	80	80	_	1 07		1 11	0.89	0.20 0	0.83	0.20 0			2 87	1.67	111	11	0.20 0	0.20 0	0.20 U	0.20 U		
Trichloroethene (TCE) 4	µg/1	5	24	5	_	5.06	6.06	3.98	2 1	19	1 7	1.6	1 90	1.8	6.14	6.56	5 19	11	0.20	0.20 11	0.20 11	0.20 U	0.10 11	0 10 11
Toluene	μg/1 μg/1	1000	2.4	0	-		0.00		10 U	10 11	10 U	10 1				0.00			10 1	10 11	10 11	10 11		
Tetrachloroethene (PCE) 4	µg/. µg/l	5	0.081	5	-			1 11	0.20 11	0.20 11	0.20 U	0.20 U	0.10 U	0.10 11			111	1.1	5.3	1.8	1.5	0.79	0.91	1.30
sec-Butylbenzene	µg/. µg/l	-	-	-	-				0.20 U	0.20 11	0.20 U	0.20 U							0.20 11	0.20 11	0.20 11	0.20 11		
Naphthalene	ua/l	160	160	-	-				1.0 U	1.0 U	1.0 U	1.0 U							1.0 U	1.0 U	1.0 U	1.0 U		
1.1.1-Trichloroethane	ua/l	200	1.600	200	-				0.20 U	0.20 U	0.20 U	0.20 U							0.20 U	0.20 U	0.20 U	0.20 U		
POLYCYCLIC ABOMATIC HYDROCABB			,																					
1-Methylnaphthalene	ua/l		-	-	-				0.094 U		0.097 UJ								0.097 U		0.096 UJ			
Acenaphthene	μg/l	-	960	-	-				0.094 U		0.097 UJ								0.097 U		0.096 UJ			
Fluorene	μg/l	-	640	-	-				0.094 U		0.097 UJ								0.097 U		0.096 UJ			
Phenanthrene	μg/l	-	-	-	-				0.094 U		0.097 UJ								0.097 U		0.096 UJ			
Benzo(g,h,i)perylene	μg/l	-	-	-	-				0.016		0.0097 UJ								0.0097 U		0.0096 UJ			
Benzo(a)anthracene*	μg/l	-	0.12	-	-				0.026		0.0097 UJ								0.010		0.0096 UJ			
Chrysene*	μg/l	-	12	-	-				0.038		0.0097 UJ								0.0097 U		0.0096 UJ			
Benzo(b)fluoranthene*	μg/l	-	0.12	-	-				0.036		0.0097 UJ								0.0097 U		0.0096 UJ			
Benzo(k)fluoranthene*	μg/l	-	1.2	-	-				0.026		0.0097 UJ								0.0097 U		0.0096 UJ			
Benzo(a)pyrene*	μg/l	0.1	0.012	0.0002	-				0.023		0.0097 UJ								0.0097 U		0.0096 UJ			
Indeno(1,2,3-cd)pyrene*	μg/l	-	0.12	-	-				0.014		0.0097 UJ								0.0097 U		0.0096 UJ			
Dibenzo(a,h)anthracene*	μg/l	-	0.12	-	-				0.0094 U		0.0097 UJ								0.0097 U		0.0096 UJ			
Total cPAHs as Benzo(a)pyrene ²	μg/l	0.1	0.012	-	-				0.0341		0.0073 UJ								0.0078		0.0072 UJ			
CONVENTIONALS																								
Calcuim	mg/l	-	-	-	-				73	67	82	64							15	27	19	16		
Magnesium	mg/l	-	-	-	-				31										6.2					
Sodium	mg/l	-	-	-	20				18	17	19	13							9.3	16	11	9.8		
Total Dissolved Solids	mg/l	-	-	-	500	376	408	357	460 J						417	392	358	160	140					
Total Organic Carbon	mg/l	-	-	-	-	3 0	3 L	J 3.11							3 U	3 L	J 15.0	7.53						
Ammonia	mg/l	-	-	-	-	0.1 U	0.201	0.100 U		0.063	0.050 U	0.25			0.1 U	0.192	0.100 U	0.100 J		0.071	0.050 U	0.12		
Nitrate	mg/l	-	-	10	-	0.1 U	14.8	12.1	19 J	16	22	24			0.1 U	13.1	10.7	0.467	1.3 J	1.4	1.9	1.3		
Nitrite	mg/l	-	-	1	-	20.7	0.258	0.100 U							20	0.237	0.100 U	0.153						
I otal Alkalinity	mg/l	-	-	-	-	243	205	200	250 J	240	280	310			224	210	214	131	76	130	300	82		
Sulfate	mg/i	-	-	-	250	14	20.6	22.4	23	22	23	24			15.4	18.8	19.2	1.33	5.0 U	14	6.8	5.0 U		
Chloride	mg/i	-	-	-	250	27.9	26.1	15.8							30.9	20.2	14.3	1.87						
Carbonate Alkalinity	mg/i	-	-	-	-	10 0	10 0	J 10.0 U							10 0	10 0	011	10.0 J						
	mg/l	-	-	-	-	243	205	200							224	210	214	131						
	611					7.60	6 10	7 40	6 90	6 00	6 90	6 95	6 70		7.60	6 70	7.60	0.00	E OF	7 15	6.00	7 50	7 10	
pn Conductivity	5.U.	-	-	-	-	/.00	6.10	/.40	0.80	0.90	0.82	000	0.72 1020		7.00	0.70	/.00	8.20	0.90	/.15	0.98	/.08 515	1.19	
Dissolved Overses	µo/cr		-	-	-	030	1020	200	6.00	7.01	920 5.07	999 6 70	6 40		NC	920	370	70	1/3	300	209	7 40	7 40	
Temperature	mg/i ∞	-	-	-	-	13	17	15	18.38	18.4	J.Z/ 16.66	20.82	19.76		14	17	16	15	22.5	0.37	17.47	22.6	7.40 21.74	
Turbidity	NITU	-	-	-	-	NC	NC	NC		90.4 90.1	56.5	55 /	35.0		NC	NC	NC	NC	22.0 NC	307	115.0	257.0	21.74	
Ovidation Reduction Potential	m\/	-	-	-	-	NC	NC	NC	105	158	25	68 68	67		NC	NC	NC	NC	111	152	57	63.0	200 Q2	
Unidation neutrolion Futerilla	111V	-	-	-		NO	NO	110	100	100	20	00	07		NO	110	NO	NO		192	57	00.0	JL	

Notes:

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

 * 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene. ** Parameter in initial sample not detected. Duplicate result presented.

¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an UJ = practical quantitation limit. Sample $^{\circ}$ C Degrees celcius.

mg/l = Milligrams per liter. μS/m = Microsiemens per meter. mV = Millivolts. NTU = Nephelometric tubidity unit. S.U. Standard units. μg/l = micrograms per liter.

Image: Probate interpart inte		1								<u>^</u>			-		104	-						•		
Number Image Number Number </th <th></th> <th></th> <th></th> <th></th> <th></th> <th>Well ID</th> <th>74040</th> <th>10/00/10</th> <th>MIW-</th> <th>0</th> <th>0/10/11</th> <th>10/10/11</th> <th>7/00/40</th> <th>10/00/10</th> <th>MW-</th> <th>-/</th> <th>0/10/11</th> <th>10/10/11</th> <th>7/00/40</th> <th>10/00/10</th> <th>MW-</th> <th>8</th> <th>0/10/11</th> <th>10/10/11</th>						Well ID	74040	10/00/10	MIW-	0	0/10/11	10/10/11	7/00/40	10/00/10	MW-	-/	0/10/11	10/10/11	7/00/40	10/00/10	MW-	8	0/10/11	10/10/11
					E	Date Sampled	7/16/10	10/26/10	2/8/11	6/21/11	9/19/11	12/13/11	7/29/10	10/26/10	2/8/11	6/21/11	9/19/11	12/13/11	7/29/10	10/28/10	2/8/11	6/21/11	9/19/11	12/13/11
Name </th <th>ΔΝΔΙ ΥΤΕ</th> <th></th> <th></th> <th>Screening</th> <th>Levels</th> <th></th>	ΔΝΔΙ ΥΤΕ			Screening	Levels																			
Norw					WA	WA																		
Image: Note of the set of t			MTCA A	MTCA B	Primary	Secondary																		
Description Description <thdescription< th=""> <thdescription< th=""> <</thdescription<></thdescription<>		Units	Level	Level	MCLs ³	MCLs ³																		
Normal was benchmark P																								
Description Description <thdescription< th=""> <thdescription< th=""> <</thdescription<></thdescription<>	Gasoline Bange Organics	113	800/1000				140		100 11				100 11		100 11				100 11		100 11			
Image Image <th< th=""><th>Diosol Rango Organios</th><th>µg/1</th><th>500</th><th>_</th><th></th><th></th><th>0.26 11</th><th></th><th>0.26 11</th><th></th><th></th><th></th><th>0.27 11</th><th></th><th>0.26 11</th><th></th><th></th><th></th><th>0.27 11</th><th></th><th>0.26 11</th><th></th><th></th><th></th></th<>	Diosol Rango Organios	µg/1	500	_			0.26 11		0.26 11				0.27 11		0.26 11				0.27 11		0.26 11			
Diral Marting Diral Diral Dirac Diral Dirac Dirac <	Diesel Hange Organics	µg/1	500	-	-	-	0.20 0		0.20 0				0.27 0		0.20 0				0.27 0		0.20 0			
Direct and set of the	Lube Oil Range Organics	µg/i	500	-	-	-	0.42 0		0.42 0				0.44 0		0.42 0				0.42 0		0.41 0			
Actr B	TOTAL METALS ²																							
Control AB AB AB AB A	Arsenic	μg/l	5	0.058	10	-	3.3 U	3.3 U			5.0 U	5.0 U	4.7	3.3 U			5.0 U	5.0 U	10	3.3 U			5.0 U	5.0 U
Code Code <th< th=""><th>Chromium</th><td>μg/l</td><td>50</td><td>-</td><td>100</td><td>-</td><td>11 U</td><td>11 U</td><td></td><td></td><td>2.0 U</td><td>2.0 U</td><td>43</td><td>14</td><td></td><td></td><td>40</td><td>2.0 U</td><td>75</td><td>27</td><td></td><td></td><td>9.1</td><td>2.0 U</td></th<>	Chromium	μg/l	50	-	100	-	11 U	11 U			2.0 U	2.0 U	43	14			40	2.0 U	75	27			9.1	2.0 U
initial ist	Copper	μq/l	-	6,400	1,300	-	11 U	11 U					86	11 U					470	11 U				
Image: Marrie	Lead	ua/l	15	-	15	-		1.1 U			2.0 U	2.0 U		1.1 U			2.0 U	2.0 U		1.1 U			2.0 U	2.0 U
Displace	Manganese	ua/l	-	2 200		50	1 800	2 400					3 100	22					35,000	460				
Determinant Determinant Determinant Description Description <thdescription< th=""> <thdescription< th=""> <</thdescription<></thdescription<>		μg/1		2,200		00	1,000	2,400					0,100						00,000	400				
Code/* Mail <	DISSOLVED METALS		50		100		10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11		
Cord Cord <th< th=""><th>Chromium</th><td>μg/i</td><td>50</td><td>-</td><td>100</td><td>-</td><td>10 0</td><td>10 0</td><td>10 0</td><td>10 0</td><td></td><td></td><td>10 0</td><td>10 0</td><td>10 0</td><td>10 0</td><td></td><td></td><td>10 0</td><td>10 0</td><td>10 0</td><td>10 0</td><td></td><td></td></th<>	Chromium	μg/i	50	-	100	-	10 0	10 0	10 0	10 0			10 0	10 0	10 0	10 0			10 0	10 0	10 0	10 0		
Index Image Image <th< th=""><th>Copper</th><td>μg/l</td><td>-</td><td>6,400</td><td>1,300</td><td>-</td><td>10 U</td><td>10 U</td><td>10 U</td><td>10 U</td><td></td><td></td><td>10 U</td><td>10 U</td><td>10 U</td><td>10 U</td><td></td><td></td><td>10 U</td><td>10 U</td><td>10 U</td><td>10 U</td><td></td><td></td></th<>	Copper	μg/l	-	6,400	1,300	-	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U		
Machine pp J 2.20 3.50 1.000 4.400 4.400 4.400 4.100<	Lead	μg/l	15	-	15			1.0 U	1.0 U	1.0 U				1.0 U	1.0 U	1.0 U				1.0 U	1.0 U	1.0 U		
Medary (a) 2 2 2 2 2 2 2 2 2 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 4 4 4 </th <th>Manganese</th> <td>μg/l</td> <td>-</td> <td>2,200</td> <td>-</td> <td>50</td> <td>1,800</td> <td>2,400</td> <td>1,400</td> <td>420</td> <td></td> <td></td> <td>64</td> <td>10 U</td> <td>11 U</td> <td>10 U</td> <td></td> <td></td> <td>10 U</td> <td>23</td> <td>11 U</td> <td>10 U</td> <td></td> <td></td>	Manganese	μg/l	-	2,200	-	50	1,800	2,400	1,400	420			64	10 U	11 U	10 U			10 U	23	11 U	10 U		
Notion Notion I I I I	Mercury	μg/l	2	-	2	-						0.20 U						0.20 U						0.20 U
Bistron Bistron <t< th=""><th>Nickel</th><td>ua/l</td><td>-</td><td>-</td><td>100</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Nickel	ua/l	-	-	100	-																		
70° 90° 9.0° 9	Selenium	ug/l		80	50																			
Normalize conservation Normalize Normalize Normalize Normalize <th>Zine</th> <td>µg/1</td> <td></td> <td>4 800</td> <td>E 000</td> <td>E 000</td> <td></td>	Zine	µg/1		4 800	E 000	E 000																		
UBLIN UBLIN <th< th=""><th>ZINC</th><td>µg/i</td><td>-</td><td>4,600</td><td>5,000</td><td>5,000</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	ZINC	µg/i	-	4,600	5,000	5,000																		
mb mb<	VOLATILE ORGANIC COMPOUNDS'																							
Check Control Los Control Cont	Vinyl Chloride	μg/l	0.2	0.029	2	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U		
The concentre (TCb) pp b 5 2 4 5 - 0.02 0 0.00 0 0 0.00 0 0 0.00 0	Chloroform	μg/l	-	80	80	-	0.20 U	0.20 U	0.20 U	0.20 U			2.2	1.9	2.4	2.6			1.6	1.3	1.5	1.7		
Interview up 100 1.00 1.00 1.00 </th <th>Trichloroethene (TCE) 4</th> <td>μg/l</td> <td>5</td> <td>2.4</td> <td>5</td> <td>-</td> <td>0.20 U</td> <td>0.20 U</td> <td>0.20 U</td> <td>0.20 U</td> <td>0.10 U</td> <td>0.10 U</td> <td>0.20 U</td> <td>0.20 U</td> <td>0.20 U</td> <td>0.20 U</td> <td>0.10 U</td> <td>0.10 U</td> <td>3.3</td> <td>1.4</td> <td>2.5</td> <td>2.3</td> <td>2.6</td> <td>2.3</td>	Trichloroethene (TCE) 4	μg/l	5	2.4	5	-	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U	3.3	1.4	2.5	2.3	2.6	2.3
Image: Normal (Normal (Toluene	µg/l	1000			-	1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.1		
new flag i<	Tetrachloroethene (PCE) 4	ua/l	5	0.081	5	-	0.20 11	0.20 11	0.20 11	0.20 11	0.10 11	0.10 11	0.20 11	0.20 11	0.20 11	0.20 11	0.10 11	0.10 11	0.20 11	0.20 11	0.20 11	0.20 11	0.10 U	0.10 11
matrix matrix<	see Butylbenzone	µg/1	0	0.001	0		0.20 0	0.42	0.20	0.20 U	0.10 0	0.10 0	0.20 U	0.20 U	0.20 U	0.20 U	0.10 0	0.10 0	0.20 U	0.20 U	0.20 U	0.20 U	0.10 0	0.10 0
11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	Neghthelene	µy/1	100	-		-	0.09	0.43	1.20	0.20 0			0.20 0	0.20 0	0.20 0	0.20 0			0.20 0	0.20 0	0.20 0	0.20 0		
Date Date <th< th=""><th>Napritraierie</th><th>μg/i</th><th>160</th><th>160</th><th>-</th><th>-</th><th>0.23</th><th>1.0 0</th><th>1.0 U</th><th>1.0 0</th><th></th><th></th><th>1.0 0</th><th>1.0 U</th><th>1.0 0</th><th>1.0 0</th><th></th><th></th><th>1.0 0</th><th>1.0 0</th><th>1.0 0</th><th>1.0 0</th><th></th><th></th></th<>	Napritraierie	μg/i	160	160	-	-	0.23	1.0 0	1.0 U	1.0 0			1.0 0	1.0 U	1.0 0	1.0 0			1.0 0	1.0 0	1.0 0	1.0 0		
Processor Processor <t< th=""><th>1,1,1-Trichloroethane</th><th>μg/I</th><th>200</th><th>1,600</th><th>200</th><th>-</th><th>0.20 U</th><th>0.20 U</th><th>0.20 U</th><th>0.20 U</th><th></th><th></th><th>0.20 U</th><th>0.20 U</th><th>0.20 U</th><th>0.20 U</th><th></th><th></th><th>0.20 U</th><th>0.20 U</th><th>0.20 U</th><th>0.20 U</th><th></th><th></th></t<>	1,1,1-Trichloroethane	μg/I	200	1,600	200	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U		
Indefinipatival Image	POLYCYCLIC AROMATIC HYDROCARBO	DNS ¹																						
Accordination India	1-Methylnaphthalene	μg/l	-	-	-	-	0.26		0.096 UJ				0.11 U		0.096 UJ				0.11 U		0.095 UJ			
Phone ip3 · 640 · · 0.11 · 0.02 · 0.11 · 0.02 · · 0.11 · 0.03 U · 0.11 · 0.03 U · 0.035 U · · · · 0.035 U ·	Acenaphthene	μg/l	-	960	-	-	0.35		0.096 UJ				0.11 U		0.096 UJ				0.11 U		0.095 UJ			
Pharambone µµ1 · <	Fluorene	ua/l	-	640	-	-	1.1		0.096 UJ				0.11 U		0.096 UJ				0.11 U		0.095 UJ			
Improves pip1 · <th< th=""><th>Phenanthrene</th><td>ug/l</td><td></td><td>-</td><td></td><td></td><td>0.098</td><td></td><td>0.096 111</td><td></td><td></td><td></td><td>0.11</td><td></td><td>0.096 111</td><td></td><td></td><td></td><td>0.11 11</td><td></td><td>0.095 111</td><td></td><td></td><td></td></th<>	Phenanthrene	ug/l		-			0.098		0.096 111				0.11		0.096 111				0.11 11		0.095 111			
method method<	Banza(a bi)pardana	µg/1					0.0006 11		0.0006 111				0.011 11		0.0006 111				0.011		0.0005 111			
Base 0 (g)mintace marker μj - 0.008 0 - 0.011 U - 0.005 U - - - - 0.011 U - 0.005 U - - - 0.011 U - 0.005 U - - - 0.011 U - 0.005 U -	Berizo(g,n,i)peryiene	µy/1	-	-		-	0.0090 0		0.0090 00				0 110.0		0.0090 00				0.011		0.0095 03			
Chrystere jpj - 0.0098 - 0.0098 - - - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0098 - - 0.0018 - - 0.0018 - - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - 0.0011 - - 0.0011 - - 0.0011 - - 0.0011 - 0.0011 - - 0.0011 - 0.0011 - 0.0011 - - 0.0011 - - 0.0011 -	Benzo(a)anthracene	μg/i	-	0.12	-	-	0.0096 0		0.0096 0J				0.011 0		0.0096 00				0.011 0		0.0095 0J			
Berach/shuranthen* μg1 ·	Chrysene*	μg/l	-	12	-	-	0.0099		0.0096 UJ				0.011 U		0.0096 UJ				0.011 U		0.0095 UJ			
Berzok/Hubernhem* µµ · I.2 · · 0.0008 U · · 0.001 U · · 0.001 U · · 0.001 U · 0.0056 U · · 0.001 U · 0.001 U · 0.001 U ·	Benzo(b)fluoranthene*	μg/l	-	0.12	-	-	0.0096 U		0.0096 UJ				0.011 U		0.0096 UJ				0.011 U		0.0095 UJ			
Benzola pyrone* up1 0.1 0.012 0.0026 U 0.0016 U 0.011 U 0.0106 U 0.011 U 0.0105 U 0.0005 U 0.011 U 0.0005 U 0.0005 U 0.0005 U 0.0005 U 0.001 U 0.001 U 0.001 U 0.001 U 0.001 U 0.001 U 0.001 U	Benzo(k)fluoranthene*	μg/l	-	1.2	-	-	0.0096 U		0.0096 UJ				0.011 U		0.0096 UJ				0.011 U		0.0095 UJ			
Indemon(1/2) and Mynace Mode M	Benzo(a)pyrene*	µg/l	0.1	0.012	0.0002	-	0.0096 U		0.0096 UJ				0.011 U		0.0096 UJ				0.011 U		0.0095 UJ			
Depende (a) methaneme ingl i.e. 0.0008 U i.e. 0.0008 U i.e. 0.0011 U i.e. 0.0008 U 0.0008 U 0.0008 U	Indeno(1.2.3-cd)pyrene*	ua/l	-	0.12	-	-	0.0096 U		0.0096 UJ				0.011 U		0.0096 UJ				0.011 U		0.0095 UJ			
Tratal phane and one part as Bencyclapyrene ² jul 0.1 0.012 0.0072 0 0.0072 0	Dibenzo(a b)anthracene*	ug/l		0.12			0.0096 11		0.0096 11.1				0.011 11		0.0096				0.011 11		0.0095			
Include PArtial Benero(hyperene" updr 0	Diberizo(a,ii)antiliacene	µg/1	0.1	0.12		-	0.0000 0		0.0070				0.0000 11		0.0070				0.0000 11		0.0070			
Convertional S Convertion S Conve	Total cPAHs as Benzo(a)pyrene	µg/i	0.1	0.012	-	-	0.0073		0.0072 00				0.0008 0		0.0072 00				0.0006 0		0.0072 03			
Image Image <th< th=""><th>CONVENTIONALS</th><td></td><td></td><td></td><td></td><td></td><td></td><td>~~</td><td><u> </u></td><td>~ ~</td><td></td><td></td><td>10</td><td>10</td><td>47</td><td>~~</td><td></td><td></td><td>50</td><td>~~</td><td><u></u></td><td>50</td><td></td><td></td></th<>	CONVENTIONALS							~~	<u> </u>	~ ~			10	10	47	~~			50	~~	<u></u>	50		
Magnesium mg/l · · 11 · <	Calcum	mg/i	-	-	-	-	26	29	28	24			46	42	47	60			59	63	62	59		
Sodium mg/l - - - 2.0 1.5 1.6 1.9 1.8 - - 2.0 3.0 - - 1.5 2.8 2.2 2.1 - - - - 1.5 2.8 2.1 -	Magnesium	mg/l	-	-	-	-	11						19						21					
Total Dissolved Solids mg/l ·	Sodium	mg/l	-	-	-	20	15	16	19	18			26	26	30	33			15	23	22	21		
Total Organic Carbon mg/l - <th>Total Dissolved Solids</th> <td>mg/l</td> <td>-</td> <td>-</td> <td>-</td> <td>500</td> <td>210</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>370</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>370</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Total Dissolved Solids	mg/l	-	-	-	500	210						370						370					
Ammonia mg/l - - - - - - 0.050 U 0.050 <th>Total Organic Carbon</th> <td>mg/l</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td>	Total Organic Carbon	mg/l	-	-	-	-																		
Nimbolina mg/l - 10 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 <th< th=""><th>Ammonia</th><th>ma/l</th><th></th><th>-</th><th>-</th><th></th><th></th><th>0.050 11</th><th>0.050 11</th><th>0.19</th><th></th><th></th><th></th><th>0.050 11</th><th>0.050 11</th><th>0.19</th><th></th><th></th><th></th><th>0.12</th><th>0.050 11</th><th>0.20</th><th></th><th></th></th<>	Ammonia	ma/l		-	-			0.050 11	0.050 11	0.19				0.050 11	0.050 11	0.19				0.12	0.050 11	0.20		
Nintale India <	Nitrato	mg/l			10		0.15	0.000 0	1.5	2.0			10	0.000 0	12	19			7 0	7 9	77	7.2		
Nitrite mg/l - I - I - I - I - I - I	Nitrate	mg/i	-	-	10	-	0.15 J	0.01	1.5	2.0			10	9.1	12	10			7.0	7.0	1.1	1.2		
Total Alkalinity mg/l - - - 150 160 150 120 - - 120 200 - - 200 2	Nitrite	mg/i	-	-	1	-																		
Sultate mg/l - - 250 6.5 7.7 15 13 38 30 34 47 20 29 21 23 Choloide mg/l 250 <th< th=""><th>Total Alkalinity</th><td>mg/l</td><td>-</td><td>-</td><td>-</td><td>-</td><td>150</td><td>160</td><td>150</td><td>120</td><td></td><td></td><td>190</td><td>180</td><td>190</td><td>200</td><td></td><td></td><td>260</td><td>270</td><td>250</td><td>240</td><td></td><td></td></th<>	Total Alkalinity	mg/l	-	-	-	-	150	160	150	120			190	180	190	200			260	270	250	240		
Choirde mg/l · <th<< th=""><th>Sulfate</th><td>mg/l</td><td>-</td><td>-</td><td>-</td><td>250</td><td>6.5</td><td>7.7</td><td>15</td><td>13</td><td></td><td></td><td>38</td><td>30</td><td>34</td><td>47</td><td></td><td></td><td>20</td><td>29</td><td>21</td><td>23</td><td></td><td></td></th<<>	Sulfate	mg/l	-	-	-	250	6.5	7.7	15	13			38	30	34	47			20	29	21	23		
Carbonate Alkalinity mg/l - </th <th>Chloride</th> <td>mg/l</td> <td>-</td> <td>-</td> <td>-</td> <td>250</td> <td></td>	Chloride	mg/l	-	-	-	250																		
Bicarbonate Alkalinity m/l a </th <th>Carbonate Alkalinity</th> <td>ma/l</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td>	Carbonate Alkalinity	ma/l	-	-	-	-																		
FIELD PARAMETERS	Bicarbonate Alkalinity	ma/l			-	-																		
pH SU. s <th></th> <td>/iig/i</td> <td></td>		/iig/i																						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		<u></u>					E OO	6.60	6.25	6.40	5.01		6 00	6 97	6 90	6 00	6 40		7 1 5	7.00	7 10	7 00	6 00	
Lonductivity µS/cm - - 298 413 394 900 317 566 640 669 999 507 554 762 663 999 494 Dissolved Oxygen mg/l - - 0.14 0 0.28 0.47 0.87 6.26 7.70 818 7.16 7.82 10.28 11.43 9.52 9.65 Temperature °C - - 16.03 15.4 15.92 17.34 19.60 16.04 21.42 20.41 18.81 16.0 17.17 20.15 19.32 10.14 19.93 16.04 21.42 14.8 16.0 17.17 20.15 19.32 10.14 19.	pH October 1	5.0.		-	-	-	5.99	0.00	6.35	6.49	5.91		0.88	0.87	0.03	0.90	0.49		/.15	7.09	/.13	/.28	0.88	
Dissolved Oxygen mg/l - - 0.14 0 0.28 0.47 0.87 6.26 7.70 818 7.16 7.61 7.82 10.28 11.43 9.52 9.65 Temperature °C - - 16.03 15.4 15.92 17.34 19.60 17.5 19.9 16.04 21.47 20.41 18.81 16.0 17.17 20.15 19.32 Turbidity NTU - - NC 34.6 42.8 7.82 14.64 18.81 16.0 17.17 20.15 19.32 Oxidation Reduction Potential mV - - NC 34.6 42.8 78.2 146 NC 68.8 66.8 17.0 120 Oxidation Reduction Potential mV - - 13 20 -1 32 6 200 202 46 64 75 210 262 49 123 84 <th>Conductivity</th> <td>μS/cn</td> <td>1 -</td> <td>-</td> <td>-</td> <td>-</td> <td>298</td> <td>413</td> <td>394</td> <td>900</td> <td>317</td> <td></td> <td>566</td> <td>640</td> <td>669</td> <td>999</td> <td>507</td> <td></td> <td>554</td> <td>/62</td> <td>693</td> <td>999</td> <td>494</td> <td></td>	Conductivity	μS/cn	1 -	-	-	-	298	413	394	900	317		566	640	669	999	507		554	/62	693	999	494	
Temperature C - - 16.03 15.4 15.92 17.34 19.60 17.5 19.9 16.04 21.47 20.41 18.81 16.0 17.17 20.15 19.32 Turbidity NTU - - - NC 9.7 0 40.0 20.5 NC 34.6 42.8 78.2 146 NC 68.8 177.0 120 Oxidation Reduction Potential mV - - 13 20 -1 32 6 200 202 46 64 75 210 262 49 123 84	Dissolved Oxygen	mg/l	-	-	-	-	0.14	0	0.28	0.47	0.87		6.26	7.70	818	7.16	7.61		7.82	10.28	11.43	9.52	9.65	
Turbidity NTU - - NC 9.7 0 40.0 20.5 NC 34.6 42.8 78.2 146 NC 698 66.8 177.0 120 Oxidation Reduction Potential mV - - 13 20 -1 32 6 200 202 46 64 75 210 262 49 123 84	Temperature	°C	-	-	-	-	16.03	15.4	15.92	17.34	19.60		17.5	19.9	16.04	21.47	20.41		18.81	16.0	17.17	20.15	19.32	
Oxidation Peduction Potential mV 13 20 -1 32 6 200 202 46 64 75 210 262 49 123 84	Turbidity	NTU	-	-	-	-	NC	9.7	0	40.0	20.5		NC	34.6	42.8	78.2	146		NC	698	66.8	177.0	120	
	Oxidation Reduction Potential	mV	-	-	-	-	13	20	-1	32	6		200	202	46	64	75		210	262	49	123	84	

Notes:

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

 * 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene. ** Parameter in initial sample not detected. Duplicate result presented.

¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an

UJ = practical quantitation limit. Sample

℃ Degrees celcius.

mg/l = Milligrams per liter. μS/m = Microsiemens per meter. mV = Millivolts.

NTU = Nephelometric tubidity unit. S.U. Standard units. µg/I = micrograms per liter.

	1				W. II IB				•			-			10			1					
				-	Well ID	7/12/10	10/05/10	0/0/11	-9	0/10/11	10/12/11	7/14/10	10/07/10	0/0/11	10	0/20/11	10/14/11	7/14/10	10/07/10	0/0/11	6/00/11	0/20/11	10/14/11
				LL.	Date Sampled	7/13/10	10/25/10	2/8/11	6/20/11	9/19/11	12/13/11	7/14/10	10/27/10	2/9/11	6/22/11	9/20/11	12/14/11	7/14/10	10/27/10	2/9/11	6/22/11	9/20/11	12/14/11
ANALYTE			Screening		WA																		
		мтса а	MTCA B	Primary	Secondary																		
	Unito			MCLe ³	MCL e ³																		
			Level	WICES	MOLS																		
	UNS	900/1000	*			100 11		100 11				100 11		100 11				100 11		100 11			
Diosol Pango Organico	μg/i	500/1000				0.26 11		0.26 11				0.26 11		0.26 11				0.26 11		0.26 11			
Lubo Oil Pango Organico	μg/i	500	_	_		0.20 0		0.41				0.20 0		0.42 11				0.41 11		0.20 0			
	μg/i	500	-		_	0.41 0		0.41 0				0.42 0		0.42 0				0.41 0		0.42 0			
Arsenic	ua/l	5	0.058	10		33 11	33 11			50 11	50 1	33 11	33 11			50 11	50 11	33 11	33 11			50 11	50 1
Chromium	μg/i	50	0.000	100		11 11	15			21	27	11 11	11 11			9.5	5.0 0	11 11	33			11	6.2
Coppor	μg/i	50	- 6 400	1 200	-	11 U	11 11			21	2.1	11 11	11 U			9.5	0.5	11 U	11 11				0.2
Load	μg/i	15	0,400	1,300		11 0	11 11			20 11	201	11 0	11			20 11	20 11	11 0	11 11			20 11	23
Leau	μg/i	15	2 200	15	50	21	64			2.0 0	2.0 C	20	120			2.0 0	2.0 0	65	56			2.0 0	2.5
Manganese	μy/i		2,200		50	21	04					39	130					05	50				
DISSOLVED METALS		50		100		10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11		
Connor	μg/i	50	-	1 200	-	10 0	10 0	10 0	10 0			10 0	10 0	10 U	10 0			10 0	10 0	10 0	10 0		
Copper	μg/i	-	6,400	1,300	-	10 0	10 0	10 0	10 0			10 0	10 0	10 0	10 0			10 0	10 0	10 0	10 0		
Lead	μg/i	15	-	15	50		1.0 0	1.0 0	1.0 0			10 11	1.0 U	1.0 U	1.0 U			10 11	1.0 U	1.0 0	1.0 U		
Manganese	μg/i	-	2,200	-	50	11	21	11 0	10 0		0.00 1	10 0	10 0	11 0	10 0			10 0	10 0	11 0	10 0		0.00
Mercury	μg/i	2	-	2	-						0.20 C						0.20 0						0.20 0
Nickel	μg/i	-	-	100	-																		
Selenium	µg/l	-	80	50	-																		
Zinc	µg/I	-	4,800	5,000	5,000																		
VOLATILE ORGANIC COMPOUNDS																							
Vinyl Chloride	µg/l	0.2	0.029	2	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U		
Chloroform	µg/l		80	80	-	0.59	0.78	0.63	0.79			1.4	1.5	1.0	1.0			0.81	0.89	1.1	0.95		
	μg/l	5	2.4	5	-	1.3	1.3	1.1	1.3	1.3	1.3	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.52	0.62	0.52	0.59	0.59	0.56	0.48
Toluene	µg/l	1000		_	-	1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U		
Tetrachloroethene (PCE)	µg/l	5	0.081	5	-	0.72	0.42	0.76	0.58	0.41	0.33	0.22	0.21	0.25	0.20 U	0.19	0.13	1.5	1.2	0.92	0.46	1.6	1.9
sec-Butylbenzene	µg/l	-	-	-	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U		
Naphthalene	µg/l	160	160	-	-	1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U		
1,1,1-Trichloroethane	μg/l	200	1,600	200	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U		
POLYCYCLIC AROMATIC HYDROCARB	ONS1																						
1-Methylnaphthalene	µg/l	-	-	-	-	0.095 U		0.096 UJ				0.098 U		0.096 UJ				0.097 U		0.096 UJ			
Acenaphthene	µg/l	-	960	-	-	0.095 U		0.096 UJ				0.098 U		0.096 UJ				0.097 U		0.096 UJ			
Fluorene	µg/l	-	640	-	-	0.095 U		0.096 UJ				0.098 U		0.096 UJ				0.097 U		0.096 UJ			
Phenanthrene	μg/l	-	-	-	-	0.095 U		0.096 UJ				0.098 U		0.096 UJ				0.097 U		0.096 UJ			
Benzo(g,h,i)perylene	µg/l	-	-		-	0.0095 U		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Benzo(a)anthracene*	µg/l	-	0.12	-	-	0.012		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Chrysene*	µg/l	-	12	-	-	0.015		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Benzo(b)fluoranthene*	µg/l	-	0.12		-	0.014		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Benzo(k)fluoranthene*	µg/l	-	1.2	-	-	0.0095 U		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Benzo(a)pyrene*	µg/l	0.1	0.012	0.0002	-	0.0095 U		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Indeno(1,2,3-cd)pyrene*	µg/l	-	0.12	-	-	0.0095 U		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Dibenzo(a,h)anthracene*	µg/l	-	0.12	-	-	0.0095 U		0.0096 UJ				0.0098 U		0.0096 UJ				0.0097 U		0.0096 UJ			
Total cPAHs as Benzo(a)pyrene ²	µg/l	0.1	0.012	-	-	0.0089		0.0072 UJ				0.0074 U		0.0072 UJ				0.0073 U		0.0072 UJ			
CONVENTIONALS							= 0						10	=-					-				
Calcuim	mg/l	-	-	-	-	62	58	67	56			58	48	73	63			/3	70	82	/8		
Magnesium	mg/l	-	-	-	-	25						23						29					
Sodium	mg/l	-	-	-	20	15	15	18	15			41	36	49	48			58	54	61	/2		
Total Dissolved Solids	mg/l	-	-	-	500	400 J						470						580					
Total Organic Carbon	mg/l	-	-	-	-																		
Ammonia	mg/l	-	-	-	-		0.050 U	0.050 U	0.30				0.050 U	0.050 U	0.13				0.084	0.050 U	0.14		
Nitrate	mg/l	-	-	10	· ·	12 J	14	14	9.4			14 J	11	16	13			15 J	14	18	22 J		
Nitrite	mg/l	-	-	1	-																		
Total Alkalinity	mg/l	-	-	-	-	200 J	200	200	180			250 J	220	290	280			340 J	360	250	350		
Sulfate	mg/l	-	-	-	250	25	21	30	17			43	35	52	40			55	22	59	61		
Chloride	mg/l	-	-	-	250																		
Carbonate Alkalinity	mg/l	-	-	-	-																		
Bicarbonate Alkalinity	mg/l	-	-	-	-																		
FIELD PARAMETERS																							
рН	S.U.	-	-	-	-	6.93	6.99	7.07	7.16	6.80		6.81	6.78	6.86	6.95	6.83		6.92	6.88	7.03	7.04	6.84	
Conductivity	μS/cm	n -	-	-	-	625	700	782	999	469		673	734	930	900	612		878	1000	980	970	1000	
Dissolved Oxygen	mg/l	-	-	-	-	8.57	9.29	10.44	8.15	9.18		6.36	8.09	8.91	7.78	8.21		6.70	8.55	845	7.78	7.50	
Temperature	°C	-	-	-	-	16.77	21.5	16.88	19.45	22.73		18.43	21.3	18.75	20.05	19.46		22.16	22.0	20.76	20.85	22.12	
Turbidity	NTU	-	-	-	-	NC	230	38.4	251	160		NC	406	83.5	174.0	153		NC	70.3	32.5	69.6	100	
Oxidation Reduction Potential	mV		-	-	-	122	165	40	56	61		128	219	41	75	92		125	152	47	75	63	

Notes:

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

 * 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene. ** Parameter in initial sample not detected. Duplicate result presented.

¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an UJ = practical quantitation limit. Sample ^oC Degrees celcius.

mg/l = Milligrams per liter.

NTU = Nephelometric tubidity unit. S.U. Standard units. μg/l = micrograms per liter. μS/m = Microsiemens per meter. mV = Millivolts.

						5							•					T							
					Well I	D	10/07/10	MW-1	12					MW-1	3					MW-	14			MW-1	15
					Date Sample	d 7/14/10	10/27/10	2/9/11	6/22/11	9/20/11	12/14/11	7/13/10	10/28/10	2/7/11	6/21/11	9/20/11	12/14/11	7/13/10	10/25/10	2/7/11	6/20/11	9/20/11	12/13/11	9/19/11	12/14/11
ΔΝΔΙ ΥΤΕ			Screening	J Levels																					
ANGELLE				WA	WA																				
		MTCA	A MTCA	B Primary	Secondary	/																			
	Unit	s Level	Level	MCLs ³	MCLs ³																				
	PRONE ¹																								
		900/100	0*			100 11		100 11				100 11		100 11				100 11		100 11					
Dissel Dense Organics	μg/1	500/100	- 10	-	-	0.05 11		0.06				0.06 U		0.06				0.06 11		0.06					
Diesel Range Organics	μg/i	500	-	-	-	0.25 U		0.26 U				0.26 U		0.26 UJ				0.26 U		0.26 UJ					
Lube Oil Range Organics	μg/l	500	-	-	-	0.40 U		0.41 U				0.41 U		0.41 UJ				0.41 U		0.41 UJ					
TOTAL METALS ²																									
Arsenic	ua/	5	0.058	10	-	3.3 U	3.3 U			5.0 U	5.0 U	3.3 U	3.3 U			5.0 U	5.0 U	3.3 U	3.3 U			5.0 U	5.0 U	5.0 U	5.0 U
Chromium	ua/	50		100		12	69			46	4.5	11 11	11 11			6.2	5.5	11 11	19			6.5	3.9	54	12
Connor	µg/1	00	6 400	1 200		14 11	11 11			40	4.0	11 0	11 U			0.2	0.0	11 11	11 11			0.0	0.0	04	
Copper	μg/i	-	6,400	1,300	-	11 U						11 0	11 0					11 0	11 0						
Lead	μg/i	15	-	15	-		1.1 U			3.2	2.0 0		1.1 U			2.0 0	2.3		1.1 U			2.0 0	2.0 0	3.8	3.4
Manganese	μg/l	-	2,200	-	50	210	58					37	44					29	51						
DISSOLVED METALS ¹																									
Chromium	ua/	50	-	100	-	10 U	12	10 U	10 U			10 U	10 U	11	10 U			10 U	10 U	10 U	10 U				
Copper		-	6 400	1 300		10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11				
oopper	μg/i	-	0,400	1,500	-	10 0	10 0	10 0	10 0			10 0	10 0	10 0	10 0			10 0	10 0	10 0	10 0				
Lead	μg/i	15		15			1.0 U	1.0 U	1.0 U				1.0 U	1.0 U	1.0 U				1.0 U	1.0 U	1.0 U				
Manganese	μg/l	-	2,200	-	50	10 U	12	11 U	10 U			10 U	17	11 U	10 U			10 U	10 U	11 U	10 U				
Mercury	μg/l	2	-	2	-						0.20 U						0.20 U						0.20 U		0.20 U
Nickel	μq/	-	-	100	-																				
Selenium	10/	-	80	50	-																				
Zine	µg/1		4 800	E 000	E 000																				
ZIIIC	μg/i	-	4,000	5,000	5,000																				
VOLATILE ORGANIC COMPOUNDS'																									
Vinyl Chloride	μg/l	0.2	0.029	2	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U				
Chloroform	μg/l	-	80	80	-	0.67	0.78	0.60	0.27			0.96	1.1	1.4	1.6			0.74	0.80	0.78	0.84				
Trichloroethene (TCE) 4	ua/	5	2.4	5	-	1.7	1.5	0.74	0.43	1.0	0.94	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U	0.87	0.99	1.0	0.73	0.82	0.75	0.10 U	0.10 U
Toluene	ua/	1000				10 11	10 11	10 11	21			10 11	10 11	10 11	10 11			10 11	10 11	10 11	10 11				
Totrachloroothono (PCE) 4	µg/1		0.001	5		0.20	0.04	0.75	0.42	0.01	0.00	0.01	0.01 11	0.20	0.05	0.25	0.07	0.04	0.70	0.96	0.02	0.02	0.70	0.10 11	0.10
	μg/i	5	0.061	5	-	0.39	0.24	0.75	0.43	0.21	0.32	0.21	0.21 0	0.30	0.25	0.35	0.27	0.94	0.72	0.00	0.93	0.93	0.79	0.10 0	0.10 0
sec-Butylbenzene	μg/I	-	-	-	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U				
Naphthalene	μg/l	160	160	-	-	0.20 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U			1.0 U	1.0 U	1.0 U	1.0 U				
1,1,1-Trichloroethane	μg/l	200	1,600	200	-	0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	0.20 U	0.20 U	0.20 U				
POLYCYCLIC ABOMATIC HYDROCA	BBONS ¹																								
1-Methylnaphthalene		_				0.095 11		0.096 111				0.095 11		0.008 111				0.094 11		0.095 111					
Assessthese	µg/1		060			0.005 11		0.006 111				0.005 U		0.000 00				0.004 U		0.000 00					
Acenaphthene	μg/i	-	960	-	-	0.095 0		0.096 00				0.095 0		0.096 00				0.094 0		0.095 00					
Fluorene	μg/I	-	640	-	-	0.095 U		0.096 UJ				0.095 U		0.098 UJ				0.094 U		0.095 UJ					
Phenanthrene	μg/l	-	-	-	-	0.095 U		0.096 UJ				0.095 U		0.098 UJ				0.094 U		0.095 UJ					
Benzo(g,h,i)perylene	μg/l	-	-	-	-	0.0095 U		0.0096 UJ				0.023		0.0098 UJ				0.020		0.0095 UJ					
Benzo(a)anthracene*	ua/	-	0.12	-		0.0095 U		0.0096 UJ				0.033		0.0098 UJ				0.029		0.0095 UJ					
Chrysene*		_	12			0.0095 11		0.0096 111				0.059		0.0008 111				0.063		0.0095 111					
Deres (h) fil versetheres*	μg/1		0.10			0.0005 U		0.0000 00				0.055		0.0000 00				0.000		0.0005 00					
Benzo(b)iluoranthene	μg/i	-	0.12	-	-	0.0095 0		0.0096 0J				0.052		0.0098 00				0.056		0.0095 0J					
Benzo(k)fluoranthene*	μg/l	-	1.2	-	-	0.0095 U		0.0096 UJ				0.027		0.0098 UJ				0.024		0.0095 UJ					
Benzo(a)pyrene*	μg/l	0.1	0.012	0.0002	-	0.0095 U		0.0096 UJ				0.029		0.0098 UJ				0.019		0.0095 UJ					
Indeno(1,2,3-cd)pyrene*	μg/l	-	0.12	-	-	0.0095 U		0.0096 UJ				0.019		0.0098 UJ				0.016		0.0095 UJ					
Dibenzo(a h)anthracene*	ua/	-	0.12	-	-	0.0095 U		0.0096 UJ				0.0095 U		0.0098 UJ				0.0094 U		0.0095 UJ					
Total aDALIa as Davas (a) arms	2 10/	0.1	0.012			0.0072 11		0.0072 111				0.0432		0.0074 111				0.0326		0.0072 111					
Total CPAHs as Berizo(a)pyrei	1e µg/1	0.1	0.012			0.0072 0		0.0072 00				0.0432		0.0074 00				0.0320		0.0072 00					
CONVENTIONALS						05		00										70	70	70					
Calcum	mg/	-	-	-	-	65	62	80	110			81	80	55	54			76	72	79	92				
Magnesium	mg/	- 1	-	-	-	26						32						32							
Sodium	mg/	- 1	-	-	20	29	29	32	32			46	44	39	37			32	31	33	34				
Total Dissolved Solids	ma/	I -	-	-	500	500						680 J						540 J							
Total Organic Carbon	ma/	I .		-	-																				
Ammonio	g/						0.050 11	0.050 11	0.10				0.050 11	0.050 11	0.05				0.050 11	0.050 11	0.00				
Animonia	mg/	-	-	-	-		0.050 0	0.050 0	0.10				0.050 0	0.050 0	0.25				0.050 0	0.050 0	0.23				
Nitrate	mg/	-	-	10	-	14 J	14	46	46 J			36 J	34	18	16			22 J	18	20	22				
Nitrite	mg/	- 1	-	1	-																				
Total Alkalinity	mg/	- 1	-	-	-	270 J	270	280	260			290 J	270	220	200			280 J	280	300	310				
Sulfate	ma/	I -	-	-	250	35	27	34	24			63	48	34	36			39	36	49	53				
Chloride	ma/	I .			250																				
Carbonate Alkalinity	mg/	-			230																				
Garbonate Aikainity	mg/	-	-	-	-																				
Bicarbonate Alkalinity	mg/	- 1	-	-	-																				
FIELD PARAMETERS																									
рН	S.U		-	-	-	7.03	7.00	7.02	6.99	6.85		6.65	6.64	6.79	6.85	6.72		6.83	6.84	6.89	7.04	6.67		6.63	
Conductivity	μS/ci	n -	-	-	-	700	855	910	1240	621		973	1130	747	999	522		808	971	957	910	1030		596	
Dissolved Oxygon		1				7 25	7 93	7.63	5.80	7 58		6.41	6.46	6.44	5.81	6.86		6.08	8 54	8 / 3	10.70	7 95		7.51	
Tomporation	iiig/		-	-	-	10.00	1.55	17.00	0.00	10.50		16.00	10.40	17.00	00.07	0.00		0.50	10.04	16.00	17.40	10.00		7.01	
remperature	°C		-	-	-	19.39	19.1	17.96	20.61	18.52		16.92	18.2	17.02	20.27	20.62		20.73	19.2	10.06	17.48	18.30		20.91	
Turbidity	NTU	J -	-	-	-	NC	245	41.3	901	914		NC	224	398.0	259.0	140		NC	68.7	15.6	12.3	9.8		>1000	
Oxidation Reduction Potential	mV	-	-	-	-	96	124	36	84	143		141	199	32	87	97		112	202	45	76	76		90	

Notes:

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

* 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene. ** Parameter in initial sample not detected. Duplicate result presented.

¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an UJ = practical quantitation limit. Sample °C Degrees celcius.

mg/l = Milligrams per liter. μS/m = Microsiemens per meter. mV = Millivolts.

NTU = Nephelometric tubidity unit. S.U. Standard units. µg/I = micrograms per liter.

NAME Notational (1) Notational (2) Notational (2) Notational (2) <th></th> <th></th> <th></th> <th></th> <th></th> <th>Well ID</th> <th></th> <th></th> <th></th> <th>SLF</th> <th>-7</th> <th></th> <th>SLF-9</th> <th>-</th>						Well ID				SLF	-7													SLF-9	-
					C	Date Sampled	Feb-98	7/14/98	Sept/Oct 99	1/31/02	7/15/10	11/4/10	2/10/11	6/23/11	3/30/93	4/13/93	6/14/93	8/31/93	9/1/93	12/7/93	8/30/94	9/28/94	11/8/94	12/16/94	2/18/98
	ΔΝΔΙ ΥΤΕ			Screening	Levels																				
Image: Norme of the second s					WA	WA																			
			MTCA A	MTCAB	3 Primary	Secondary																			
Note: Note: <th< td=""><td></td><td>Units</td><td>E Levei</td><td>Level</td><td>MCLS</td><td>MCLS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		Units	E Levei	Level	MCLS	MCLS																			
Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	Casoline Bange Organics	ONS.	800/1000)* _	_						100 11		100 11												
Importantification free provides and set of the set of	Diesel Bange Organics	μg/i μα/l	500	, -							0.26 U		0.26 11												
Virtual Virtual <t< td=""><td>Lube Oil Bange Organics</td><td>µg/1 µa/1</td><td>500</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td>0.42 U</td><td></td><td>0.42 U</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Lube Oil Bange Organics	µg/1 µa/1	500	-	-	-					0.42 U		0.42 U												
Name Matrix Matrix <td></td> <td>-5-</td> <td></td>		-5-																							
Important Important <t< td=""><td>Arsenic</td><td>μg/l</td><td>5</td><td>0.058</td><td>10</td><td>-</td><td></td><td></td><td></td><td></td><td>3.3 U</td><td>3.3 U</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Arsenic	μg/l	5	0.058	10	-					3.3 U	3.3 U													
Solve All B All A A A A<	Chromium	μg/l	50	-	100	-					11 U	13													
mathem poi pi pi<	Copper	μg/l	-	6,400	1,300	-					11 U	11 U													
martial i i i i <td>Lead</td> <td>μg/l</td> <td>15</td> <td>-</td> <td>15</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.1 U</td> <td></td>	Lead	μg/l	15	-	15	-						1.1 U													
Displant All All All All All All All All All Al	Manganese	μg/l	-	2,200	-	50					11 U	32													
bindim pp pp< pp< <	DISSOLVED METALS'		50		100			1.0				40.11		10.1											
indiff indif indif indif <td>Corpor</td> <td>µg/i</td> <td>50</td> <td>-</td> <td>1 200</td> <td>-</td> <td></td> <td>1.8</td> <td></td> <td></td> <td>10 U</td> <td>10 0</td> <td>10 U</td> <td>10 0</td> <td>J</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3.3</td>	Corpor	µg/i	50	-	1 200	-		1.8			10 U	10 0	10 U	10 0	J										3.3
Image: mage:	Lead	μg/i	- 15	6,400	1,300	-		3.1			10 0	10 0	10 0	10 0	J										2.4
Merry Merry <th< td=""><td>Manganese</td><td>μg/i μα/l</td><td>-</td><td>2 200</td><td>-</td><td>50</td><td></td><td></td><td></td><td></td><td>10 11</td><td>10 U</td><td>11 11</td><td>1.0 C</td><td>J</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1 1</td></th<>	Manganese	μg/i μα/l	-	2 200	-	50					10 11	10 U	11 11	1.0 C	J										1 1
Notifie Notifie Note	Mariganese	ua/l	2	-	2	-		0.2 U																	0.5 U
beam beam <th< td=""><td>Nickel</td><td>μg/l</td><td>-</td><td>-</td><td>100</td><td>-</td><td></td><td>3.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.3</td></th<>	Nickel	μg/l	-	-	100	-		3.7																	2.3
r.r.c. is is <th< td=""><td>Selenium</td><td>μg/l</td><td>-</td><td>80</td><td>50</td><td>-</td><td></td><td>1 U</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1 L</td></th<>	Selenium	μg/l	-	80	50	-		1 U																	1 L
Vicult Dickley Cubrolines vicult Cubrolines <td>Zinc</td> <td>μg/l</td> <td>-</td> <td>4,800</td> <td>5,000</td> <td>5,000</td> <td></td> <td>7.3</td> <td></td> <td>149</td>	Zinc	μg/l	-	4,800	5,000	5,000		7.3																	149
With Draws (p) 0 </td <td>VOLATILE ORGANIC COMPOUNDS¹</td> <td></td>	VOLATILE ORGANIC COMPOUNDS ¹																								
Interview 100	Vinyl Chloride	μg/l	0.2	0.029	2	-				0.50 U	0.20 U	0.20 U	0.20 U	0.20 L	J 0.2 U	J 0.2 U	0.2 U	0.2 U	0.2 U						
Interviewer Up 1 Obj 24 D 23 23 23 23 24 D 73 24 25 10 10 10 100 10 100 10 100	Chloroform	μg/l	-	80	80	-				0.60	0.20 U	0.20 U	0.20 U	0.20 L	J 0.5 U	J 1.5	0.2 U	1.3	1.30						1.05
Transmister PC(1) pp 16 0.08 5 - - - 0.20 0.	Trichloroethene (TCE)	μg/l	5	2.4	5	-				0.50 U	0.20 U	0.20 U	0.20 U	0.20 L	0.5 U	2.6	1.7	2.3	2.3	2.3	1.9	1.8	1.8	1.77	2.48
methodeners up u <t< td=""><td>Totrashlaraothona (BCE) 4</td><td>µg/i</td><td>1000</td><td>0.001</td><td>-</td><td>-</td><td></td><td>1.06</td><td></td><td></td><td>1.0 U</td><td>1.0 U</td><td>1.0 U</td><td>1.0 L</td><td></td><td>4.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1.94</td></t<>	Totrashlaraothona (BCE) 4	µg/i	1000	0.001	-	-		1.06			1.0 U	1.0 U	1.0 U	1.0 L		4.1									1.94
Instrument ipp is is< is is	sec-Butylbenzene	μg/i	5	0.061	5	-		1.20		0.50 0	0.20 0	0.20 0	0.20 0	0.20 0	3.0	4.1	2.3	3.1	3.1	3.4	2.7	2.7	2.0	2.42	1.04
11.11.71.01.000.000 Harm 100 200 18000 1800 1800 18	Naphthalene	μg/i μg/l	160	160							10 11	10 11	10 11	101	· ··										
PolyControl Amountare information in the internal of th	1.1.1-Trichloroethane	µg/i µa/l	200	1.600	200	-					0.20 U	0.20 U	0.20 U	0.2 L	J			0.6							
Interpretation DA I	POLYCYCLIC AROMATIC HYDROCARBO	ONS		,											-										
Assumptime jpi i< <	1-Methylnaphthalene	μg/l	-	-	-	-					0.098 U		0.096 UJ												
Florem jpd r 640 r r n	Acenaphthene	μg/l	-	960	-	-					0.098 U		0.096 UJ												
Phemamine jud	Fluorene	μg/l	-	640	-	-					0.098 U		0.096 UJ												
Beresch Abgergene up1 ·	Phenanthrene	μg/l	-	-	-	-					0.098 U		0.096 UJ												
Improversion just of the structure Collon <t< td=""><td>Benzo(g,h,i)perylene</td><td>μg/l</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td>0.0098 U</td><td></td><td>0.0096 UJ</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Benzo(g,h,i)perylene	μg/l	-	-	-	-					0.0098 U		0.0096 UJ												
Lugarini jugarini	Benzo(a)anthracene*	μg/l	-	0.12	-	-					0.0098 U		0.0096 UJ												
Bercock/lineaminent ind in in </td <td>Benzo(b)fluoranthene*</td> <td>μg/i</td> <td>-</td> <td>0.12</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>0.0096 0</td> <td></td> <td>0.0096 UJ</td> <td></td>	Benzo(b)fluoranthene*	μg/i	-	0.12	-	-					0.0096 0		0.0096 UJ												
Benza/Layrene* Ind In	Benzo(k)fluoranthene*	μg/i μg/l		1.2							0.0098 U		0.0096 111												
Indem(1 2)0.012 0.12 0.0008 U	Benzo(a)pyrene*	µg/. µa/l	0.1	0.012	0.0002	-					0.0098 U		0.0096 UJ												
Diperzoja,handmanene" joll 0.12	Indeno(1,2,3-cd)pyrene*	μg/l	-	0.12	-	-					0.0098 U		0.0096 UJ												
Total p2P4/s As Benzolajoynen ² ugl 0.1 0.012 u.1 0.0074 U 0.0072 U u.1 u.1 <thu.1< th=""> u.1 u.1<td>Dibenzo(a,h)anthracene*</td><td>μg/l</td><td>-</td><td>0.12</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td>0.0098 U</td><td></td><td>0.0096 UJ</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thu.1<>	Dibenzo(a,h)anthracene*	μg/l	-	0.12	-	-					0.0098 U		0.0096 UJ												
Convertion Magnesium mgl - <td>Total cPAHs as Benzo(a)pyrene²</td> <td>μg/l</td> <td>0.1</td> <td>0.012</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>0.0074 U</td> <td></td> <td>0.0072 UJ</td> <td></td>	Total cPAHs as Benzo(a)pyrene ²	μg/l	0.1	0.012	-	-					0.0074 U		0.0072 UJ												
Calculm mg/l · <th<< td=""><td>CONVENTIONALS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<<>	CONVENTIONALS																								
Magnesum mgn · <th< td=""><td>Calcuim</td><td>mg/l</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td>13</td><td>15</td><td>14</td><td>15</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Calcuim	mg/l	-	-	-	-					13	15	14	15											
Soduum ingl i	Magnesium	mg/l	-	-	-	-					5.2														
Inder issuere sources implifier implifier <td>Sodium Total Dissolved Solida</td> <td>mg/l</td> <td>-</td> <td>-</td> <td>-</td> <td>20</td> <td></td> <td>129.0</td> <td></td> <td></td> <td>5.9 120</td> <td>0.3</td> <td>0.4</td> <td>7.0</td> <td></td>	Sodium Total Dissolved Solida	mg/l	-	-	-	20		129.0			5.9 120	0.3	0.4	7.0											
India Ungality India	Total Dissolved Solids	ma/l	-			500		3 11			120														452
Nirrate mg/l - 10 - 1.52 5.0 - 1.3 J 1.6 J J J J J J J J J	Ammonia	ma/l		-	-			01 U				0.073	0.050 U	0.15											0 222
Nitrite mg1 ·	Nitrate	ma/l	-	-	10	-		1.52	5.0		1.3 J	1.6 J	1.4	1.6											0.1 U
Total Alkalinity mg/l ·	Nitrite	mg/l	-	-	1	-		0.1 U	0.2 U																35.2
Sulfate mg/l - - 250 3.08 13.2 5.0 U S.0 U S.0 <td>Total Alkalinity</td> <td>mg/l</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td>61.0</td> <td></td> <td></td> <td>66</td> <td>74</td> <td>74</td> <td>80</td> <td></td> <td>289</td>	Total Alkalinity	mg/l	-	-	-	-		61.0			66	74	74	80											289
Choide mg/l - - - 4.12 12.3 -	Sulfate	mg/l	-	-	-	250		3.08	13.2		5.0 U	5.0 U	5.0 U	5.0 L	J										14.9
Carbonate Alkalinity mg/l - - - 10 - - - - - - - - - - 10 U Bicarbonate Alkalinity mg/l -	Chloride	mg/l	-	-	-	250		4.12	12.3																41.3
Bicarbonate Alkalinity mg/l s<	Carbonate Alkalinity	mg/l	-	-	-	-		10 U																	10 U
FIELD PARAMETERS pH S.U. - - - NC 6.20 NC NC 6.70 7.56 7.57 -	Bicarbonate Alkalinity	mg/l	-	-	-	-		61.0																	289
pri 5.0. - - NC b.20 NC		<u></u>					10	0.00			10	0.70	7.50	7 - 7											7.00
Operativity potent - - - NC	pH Conductivity	5.U. 11 ⁰ /07	-	-	-	-	NG	6.20	NC	NG	NG	6./U	/.56	/.5/ 50 1											1020
Dissingle oxygen ingr ing	Dissolved Oxygon	µ3/01	-	-	-	-	NC	200	NC	NC	NC	190	7 56	5 82											NC
Turbility NTU - - - NC NC NC NC NC Sold 100	Temperature	•C	-		-	-	NC	15	NC	NC	NC	13.7	13.0	15.55											13
Oxidation Reduction Potential mV NC NC NC NC NC 217.0 64.0 66.0	Turbidity	NTU	-		-		NC	NC	NC	NC	NC	50.9	129.0	37.3											NC
	Oxidation Reduction Potential	mV	-		-	-	NC	NC	NC	NC	NC	217.0	64.0	66.0											NC

Notes:

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

 * 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene. ** Parameter in initial sample not detected. Duplicate result presented.

¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an U_J = practical quantitation limit. Sample °C Degrees celcius.

mg/I = Milligrams per liter.

μS/m = Microsiemens per meter. mV = Millivolts.

NTU = Nephelometric tubidity unit. S.U. Standard units. µg/I = micrograms per liter.

					Well ID											SLF	-10			
				Da	ate Sampled	7/14/98	Sept/Oct 99	1/31/02	7/15/10	11/4/10	2/10/11	6/23/11	2/18/98	7/14/98 Sep	ot/Oct 99	3/27/02	7/15/10	11/4/10	2/10/11	6/23/11
ANALYTE		S	Screening	Levels	10/0															
				WA Drimon/	WA Socondany															
	Unito			MCL e ³	MCL c ³															
	Units	Level	Level	MCLS	WICES															
Gasoline Bange Organics	15	800/1000*							100 11		100 11						100 11		100 11	
Diesel Bange Organics	µg/1	500	-	-	-				0.26 U		0.26 U						0.26 U		0.26 U	
Lube Oil Bange Organics	ua/l	500	-	-	-				0.41 U		0.41 U						0.41 U		0.41 U	
	P-5-																			
Arsenic	μq/l	5	0.058	10	-				3.3 U	3.3 U							3.3 U	3.3 U		
Chromium	μq/l	50	-	100	-				11 U	11 U							11 U	11 U		
Copper	μg/l	-	6,400	1,300	-				11 U	11 U							11 U	11 U		
Lead	μg/l	15	-	15	-					6.6								1.1 U		
Manganese	μg/l	-	2,200	-	50				11 U	12							11 U	11 U		
DISSOLVED METALS ¹																				
Chromium	μg/l	50	-	100	-	4			10 U		10 U	10 U	1	1			10 U	10 U	10 U	10 U
Copper	μg/l	-	6,400	1,300	-	3.6			18		10 U	10 U	2.2	3			10 U	10 U	10 U	10 U
Lead	μg/l	15	-	15		1.1					1.0 U	1.1	1 U	1 U				1.0 U	1.0 U	1.0 U
Manganese	μg/l	-	2,200	-	50	10.0 U			10 U		11 U	10 U	1 U	10.0 U			10 U	10 U	11 U	10 U
Mercury	μg/l	2	-	2	-	0.28							0.5 U	0.6						
Nickel	μg/l	-	-	100	-	1.7							1 U	2						
Selenium	μg/l	-	80	50	-	1.5							1 U	1 U						
Zinc	μg/l	-	4,800	5,000	5,000	146							5 U	14.8						
VOLATILE ORGANIC COMPOUNDS ¹																				
Vinyl Chloride	μg/l	0.2	0.029	2	-			0.50 U	0.20 U	0.20 U	0.20 U	0.20 0				0.50 U	0.20 U	0.20 U	0.20 U	0.20 U
Tripheresthene (TCE) 4	µg/i	-	80	80	-	0.00		1.2	0.78	0.63	0.72	0.72	2.04	1.49		1.7	1.4	1.1	1.5	1.2
Taluana	µg/i	1000	2.4	5	-	3.23		4.0	1.2	1.1	1.2	1.3				0.50 0	0.20 0	0.20 0	0.20 0	0.20 0
Tetrachloroethene (PCE) ⁴	µg/i	1000	0.091	5	-	1 61		0.0	0.52	0.52	0.49	0.42				0.50 11	0.42	0.20	0.49	0.41
	µg/i	5	0.061	5	-	1.01		0.9	0.32	0.55	0.49	0.43				0.50 0	0.43	0.39	0.49	0.41
Naphthalana	µg/i	160	160		-				10 11	10 11	10 11	10 11					10 11	10 11	10 11	10 11
1 1 1-Trichloroethane	µg/i	200	1 600	200	-				0.20 11	0.20 11	0.20 11	0.2 11					0.20 11	0.20 11	0.20 11	0.2 11
	بوم. ا د ا	200	1,000	200					0.20 0	0.20 0	0.20 0	0.2 0					0.20 0	0.20 0	0.20 0	0.2 0
1-Methylnaphthalene	ua/l	-	-	-	-				0.097 U		0.096 UJ						0.13 U		0.096 UJ	
Acenaphthene	ua/l	-	960	-	-				0.097 U		0.096 UJ						0.13 U		0.096 UJ	
Fluorene	μq/l	-	640	-	-				0.097 U		0.096 UJ						0.13 U		0.096 UJ	
Phenanthrene	μg/l	-	-	-	-				0.097 U		0.096 UJ						0.13 U		0.096 UJ	
Benzo(g,h,i)perylene	μg/l	-	-	-	-				0.0097 U		0.0096 UJ						0.020		0.0096 UJ	
Benzo(a)anthracene*	μg/l	-	0.12	-	-				0.012		0.0096 UJ						0.024		0.0096 UJ	
Chrysene*	μg/l	-	12	-	-				0.012		0.0096 UJ						0.038		0.0096 UJ	
Benzo(b)fluoranthene*	μg/l	-	0.12	-	-				0.012		0.0096 UJ						0.033		0.0096 UJ	
Benzo(k)fluoranthene*	μg/l	-	1.2	-	-				0.0097 U		0.0096 UJ						0.016		0.0096 UJ	
Benzo(a)pyrene*	μg/l	0.1	0.012	0.0002	-				0.0097 U		0.0096 UJ						0.013 U		0.0096 UJ	
Indeno(1,2,3-cd)pyrene*	µg/l	-	0.12	-	-				0.0097 U		0.0096 UJ						0.016		0.0096 UJ	
Dibenzo(a,h)anthracene*	μg/l	-	0.12	-	-				0.0097 U		0.0096 UJ						0.013 U		0.0096 UJ	
Total cPAHs as Benzo(a)pyrene ²	µg/l	0.1	0.012	-	-				0.0656		0.0072 UJ						0.016		0.0072 UJ	
CONVENTIONALS									05		00	0.1					50	40	45	40
Calcum	mg/i	-	-	-	-				85		90	84					52 21	48	45	40
Cadium	mg/l	-	-		-				24		25	25					10	16	17	16
Sodium Total Disselved Selida	mg/l	-			20	503			580		33	35	208	367			370	10	17	10
Total Dissolved Solids	mg/l	-		_	500	3 1							3 11	3 11			570			
Ammonia	mg/l				-	01				0 10	0.050 11	0.14	01 11	01 11				0.080	0.050 11	0.13
Nitrate	ma/l			10	-	14.9	14.2		12 .1	16 .1	12	14	0.1 U	8.81	92		74.1	66 .1	6.000 U	7.3
Nitrite	ma/l			1	-	0.1	02 11						23.8	0.1 11	0.2 11					
Total Alkalinity	ma/l	-	-	-	-	268			310	330	320	310	145	161			170	160	150	140
Sulfate	mg/l	-	-	-	250	31.1	28.4		28	28	27	28	8.47	29.8	32.9		32	36	24	27
Chloride	mg/l	-	-	-	250	38.3	40.7						33.1	41.7	45.8					
Carbonate Alkalinity	mg/l	-	-	-	-	10 U							10 U	10 U						
Bicarbonate Alkalinity	mg/l	-	-	-	-	268							142	161						
FIELD PARAMETERS	-																			
pН	S.U.	-	-	-	-	6.60	NC	NC	6.54	NC	7.02	6.91	8.30	6.40	NC	NC	NC	6.14	6.68	6.88
Conductivity	μS/cm	-	-	-	-	1200	NC	NC	903	NC	970	900	630	960	NC	NC	NC	573	528	900
Dissolved Oxygen	mg/l	-	-	-	-	NC	NC	NC	7.95	NC	10.15	8.76	NC	NC	NC	NC	NC	4.25	5.05	4.42
Temperature	°C	-	-	-	-	13	NC	NC	16.51	NC	13.40	14.85	13	13.5	NC	NC	NC	13.6	12.44	17.97
Turbidity	NTU	-	-	-	-	NC	NC	NC	NC	NC	0	182	NC	NC	NC	NC	NC	26.9	0	22.2
Oxidation Reduction Potential	mV	-	-	-	-	NC	NC	NC	231	NC	56	89	NC	NC	NC	NC	NC	195	98	98

Values are screened against MCLs where they exist. If no MCL, Method B values are used. If no Method B, then Method A values are used.

 * 800 µg/l if benzene present or 1,000 µg/l if benzene is not present.

- No comparative value established.

-- No analysis was completed for this parameter or parameter was non-detect.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene. ** Parameter in initial sample not detected. Duplicate result presented.

¹ Only analytes with a minimum of one detection are listed.

² Total of individal cPAHs (indicated by *) multipled by benzo(a)pyrene toxcity equivalency

half the practical quantitation limit was used for non-detect values.

³ Primary and secondary MCLs for both WAC 173-200-040 and 246-290-310 are the same.

⁴ Ecology modified TCE and PCE Method B cleanup levels in June 2012 to 4 ug/L and 5 ug/L, respectively. Preliminary cleanup levels presented in Table 13 show this change.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons. U = Analyte not detected above given practical quantitation limit. J = recommended hold time, value is an UJ = practical quantitation limit. Sample °C Degrees celcius.

mg/l = Milligrams per liter.

- μS/m = Microsiemens per meter. mV = Millivolts.
- NTU = Nephelometric tubidity unit. S.U. Standard units. μg/l = micrograms per liter.

								Completion	Depth			
Qtr	Qtr	Section	Т	R	ID #	Log ID	Туре	Date	(ft)		Owner	
NE	NE	13	7N	35E	Α	178366	Water	10/29/1991	83	City of Walla Walla		Walla Walla Landfill
SE	SW	13	7N	35E	в	164601	Water	10/21/1986	181	City of Walla Walla		
	SF	13	7N	35E	c	294359	Water	5/20/1957	1 201	WSP		
SF	SE	13	7N	35E	D1	437840	Resource Protection	3/30/2006	40	WSP		1313 NORTH 13TH AVENUE
NE	SE	13	7N	35E	D2	429601	Water	9/5/1968	1 618	WSP		
N	SW	18	7N	36E	Δ	20/228	Water	9/1/1956	1 004	Sate of Washington		
SW/	SW	18	7N	36E	R1	205750	Resource Protection		1,004	WSP		
SW	SW/	18	7N	365	B2	205760	Resource Protection			WSP		
SW	SW	10	711	26E	D2 D2	205761	Resource Protection			WSD		
5VV	SW	10	711	30E	D3 D4	290701	Resource Protection					
300	300	10		30E	D4	295762	Resource Protection			WOP		
500	500	18		36E	B2	295763	Resource Protection			WSP		
500	500	18	7 IN	36E	B0	295764	Resource Protection			WSP		
SW	SW	18	/N	36E	B/	295765	Resource Protection			WSP		
SW	SW	18	7N	36E	B8	295766	Resource Protection			WSP		
SW	SW	18	7N	36E	B9	295767	Resource Protection			WSP		
SW	SW	18	7N	36E	B10	295768	Resource Protection			WSP		
SW	SW	18	7N	36E	B11	295769	Resource Protection			WSP		
SW	SW	18	7N	36E	B12	295770	Resource Protection			WSP		
SW	SW	18	7N	36E	B13	295771	Resource Protection			WSP		
SW	SW	18	7N	36E	B14	295772	Resource Protection			WSP		
SW	SW	18	7N	36E	B15	295773	Resource Protection			WSP		
SW	SW	18	7N	36F	B16	295774	Resource Protection			WSP		
SW	SW	18	7N	36F	B17	295775	Resource Protection			WSP		
SW	SW	18	7N	36E	B18	205776	Resource Protection			WSP		
SW	S/W	10	711	265	B10	205777	Resource Protection			WSD		
SW	SW	10	711	26E	D13	205770	Resource Protection			WSD		
500	200	10		30E		295//6	Resource Protection			WSP		
500	200	18		30E	BZ1	295779	Resource Protection			WSP		
SW	SW	18	7N	36E	B22	295780	Resource Protection			WSP		
SW	SW	18	7N	36E	B23	295781	Resource Protection			WSP		
SW	SW	18	7N	36E	B24	295782	Resource Protection			WSP		
SW	SW	18	7N	36E	B25	295783	Resource Protection			WSP		
SW	SW	18	7N	36E	B26	295784	Resource Protection			WSP		
SW	SW	18	7N	36E	B27	295785	Resource Protection			WSP		
SW	SW	18	7N	36E	B28	295786	Resource Protection			WSP		
NE	SW	18	7N	36E	C1	165489	Water	12/29/1970	272	WSP		
SE	SW	18	7N	36E	C2	174174	Water	1/1/1912	640	WSP		
SE	SW	18	7N	36E	C3	174175	Water	1/1/1911	525	WSP		
SE	SW	18	7N	36E	C4	174176	Water	1/1/1911	525	WSP		
NE	NE	24	7N	35E	А	164164	Water	10/24/1977	61	CARL GRASSI		Rt 2 Box 89
SW	NF	24	7N	35E	B	164386	Water	6/6/1980	140	CHAS ROBERTSON		
SW	NF	24	7N	35E	B2	514046	Decommissioned	3/10/2004	52	WSDOT		SR12 MP334 8 APPROX 1/2 M
SW	NE	2/	7N	35E	B3	166756	Water	6/15/1083	1/5			
S/W		24	7N	355	B/	168816	Water	3/13/1900	110			Pt 2 Box 1724
SW		24	711	25E		270722	Popouroo Brotostion	2/10/2004	F2			
		24	711	250	01	510133	Decompissioned	S/10/2004	20	WSDOT		
	0E	24		30E		514000	Decommissioned	0/10/2005	29	WSDOT		SR12 VIC OF DELL STREET,
INE	SE	24		30E	02	514062	Decommissioned	6/16/2005	49	WSDOT		SR12 VIC OF PINE STREET,
NE	SE	24	7 N	35E	03	514063	Decommissioned	6/16/2005	49	WSDOT		SR12 VIC OF PINE STREET,
NE	SE	24	7N	35E	C4	514065	Decommissioned	6/14/2005	41	WSDOT		SR12 VIC OF DELL STREET,
NE	SE	24	7N	35E	C5	295739	Resource Protection	5/7/1998		VALLEY DIESEL		1491 Dell Ave
NE	SE	24	7N	35E	C6	295740	Resource Protection	5/6/1998		VALLEY DIESEL		1491 Dell Ave
NE	SE	24	7N	35E	C7	295741	Resource Protection	5/6/1998		VALLEY DIESEL		1491 Dell Ave
NE	SE	24	7N	35E	C8	416249	Resource Protection	8/16/2005	39	WSDOT		SR 12/PINE STREET/MYRA R
NE	SE	24	7N	35E	C9	574617	Resource Protection	8/16/2005		WSDOT		SR12/PINE STREET, WALLA
NE	SE	24	7N	35E	C10	574618	Resource Protection	8/16/2005		WSDOT		SR12/PINE STREET, WALLA
NE	SE	24	7N	35E	C11	574619	Resource Protection	8/16/2005		WSDOT		SR12/PINE STREET, WALLA
NE	SE	24	7N	35E	C12	574620	Resource Protection	8/16/2005		WSDOT		SR12/PINE STREET, WALLA
NE	SE	24	7N	35E	C13	580233	Resource Protection	6/16/2005	29	WSDOT		SR 12 AT VIC. DELL STREET
NF	SF	24	7N	35F	C14	580234	Resource Protection	6/16/2005	44	WSDOT		SR 12 AT VIC. DELL STRFFT
NF	SF	24	7N	35F	C15	580235	Resource Protection	6/16/2005		WSDOT		SR 12 AT VIC. DELL STREET

, WALLA WALLA 99362

MILE NORTH

TELY 1/2 MILE NORTH,WALLA WALLA 99362 , WALLA WALLA WALLA WALLA , WALLA WALLA , WALLA WALLA

RD EXCH, WALLA WALLA 99362 A WALLA 99362 A WALLA 99362 A WALLA 99362 A WALLA 99362 T, WALLA WALLA 99362 T, WALLA WALLA 99362 T, WALLA WALLA 99362 T, WALLA WALLA 99362

Qtr	Qtr	Section	т	R	ID #	Log ID	Туре	Completion Date	Depth (ft)	Owner	
NE	SE	24	7N	35E	C16	580236	Resource Protection	6/16/2005		WSDOT	SR 12 AT VIC. DELL STREET
NE	SE	24	7N	35E	C17	580237	Resource Protection	6/16/2005		WSDOT	SR 12 AT VIC. DELL STREET
NE	SE	24	7N	35E	C18	580238	Resource Protection	6/16/2005	40	WSDOT	SR 12 AT VIC. DELL STREET
NE	SE	24	7N	35E	D	514045	Decommissioned	8/16/2005	39	WSDOT	SR12 VIC OF PINE STREET,
SW	NW	24	7N	35E	Е	175051	Water	4/25/1996	160	DONNA STEVENSON	2120 DELL AVENUE, WALLA
SW	NW	24	7N	35E	E2	414758	Resource Protection	5/9/2005	17	WSDOT	SR 12 AND GOSE ROAD
SE	NW	24	7N	35E	F1	514072	Decommissioned	1/16/2008	34	WSDOT	SR12 VIC OF GOSE ROAD, V
SE	NW	24	7N	35E	F2	514073	Decommissioned	1/16/2008	46	WSDOT	SR12 VIC OF GOSE ROAD, V
SE	NW	24	7N	35E	F3	174996	Water	1/6/1994	153	JOHN DUNCAN	NKA/ROUTE 5/BOX 246, WAI
SE	NW	24	7N	35E	F4	253886	Water	6/16/2000	151	LEON EWING	2010 DELL AVE
SE	NW	24	7N	35E	F5	170379	Water	9/2/1997	141	MARK & SHERRY PEASE	2010 Dell Ave
SE	NW	24	7N	35E	F6	349382	Water	11/14/2002	158	STEVEN GILMORE SR	DELL AVE
SE	NW	24	7N	35E	F7	414756	Resource Protection	5/9/2005	37	WSDOT	SR 12 AND GOSE ROAD
SE	NW	24	7N	35E	F8	579465	Resource Protection	5/10/2005		WSDOT	SR 12/GOSE ROAD
SE	NW	24	7N	35E	F9	579466	Resource Protection	5/10/2005		WSDOT	SR 12/GOSE ROAD
NW	SW	24	7N	35E	G1	163126	Water	4/25/1979	186	ALVIN MC DOWELL	
NW	SW	24	7N	35E	G2	430000	Water	12/9/1991	198	ANDREW PINZA	NKA/ROUTE 5/BOX 183, WAL
NW	SW	24	7N	35E	G3	165875	Water	5/17/1994	106	DONN JOHNSON	NKA, WALLA WALLA 99362
NW	SW	24	7N	35E	G4	358480	Water	4/4/2003	150	ROBERT ESKILOSEN	2598 Dell Ave
NW	SW	24	7N	35E	G5	172584	Water	6/23/1993	170	RON MILKS	2175 DELL AVE, WALLA WAL
NVV	SW	24	/N	35E	G6	1/265/	Water	8/12/1954	5/2	ROSCOE GLUCK	
NE	SW	24	/N	35E	H1	512886	Resource Protection	12/11/2007	25	WSDOI	NKA/DELL AVENUE & PINE S
NE	SW	24	/N	35E	H2	429999	Water	7/26/1993	15		NKA/ROUTE 5/BOX 182, WAL
NE	SVV	24	7N	35E	H3	171294	Water	9/12/1979	190	P. P & L SUB STATION	
NE	SVV	24	7N 7N	35E	H4	1/1/69	Water	7/18/1985	195		NKA/WALLA WALLA, 99362
NE	500	24	/ N	35E	H5	163755	vvater	8/31/1995	33	ROBERT HYNEK	
NE	500	24	/ N	35E	Hb	309466	Resource Protection	7/25/2001	20		1491 Dell Ave
	200	24	/ IN 7 N	35E		309467	Resource Protection	7/25/2001	20		1491 Dell Ave
	5VV 9E	24	7 IN 7 N	30⊑ 25⊑		514060	Decommissioned	1/25/2001	20		
	0E	24	7 IN 7 N	30⊑ 25⊑	11	514009	Decommissioned	1/10/2000	34 40	WSDOT	
	0E	24	7 IN 7 N	25E	12	101702	Water	9/24/1000	40		Dt 5 Box 226
		24	7 IN 7 N	355	13	353/32	Water	2/18/2003	140		
	SE	24	7 N	355	14	183123	Resource Protection	2/10/2003	140	WSDOT	
NI\A/	SE	24	7 N	35E	16	403123	Resource Protection	2/21/2007	13	WSDOT	HWY 12 AND PINE STREET
	SE	24	7N	35E	17	/83125	Resource Protection	2/21/2007	13	WSDOT	HWY 12 AND PINE STREET
NW	SE	24	7N	35E	18	483126	Resource Protection	2/21/2007	10	WSDOT	HWY 12 AND PINE STREET
NW	SE	24	7N	35E	19	483128	Resource Protection	2/21/2007	13	WSDOT	HWY 12 AND PINE STREET
NW	SE	24	7N	35E	110	483120	Resource Protection	2/21/2007	10	WSDOT	HWY 12 AND PINE STREET
NW	SE	24	7N	35E	111	483131	Resource Protection	2/22/2007	13	WSDOT	HWY 12 AND PINE STREET
NW	SF	24	7N	35E	112	483132	Resource Protection	2/22/2007	13	WSDOT	HWY 12 AND PINE STREET
NW	SE	24	7N	35E	113	514048	Decommissioned	1/16/2008	13	WSDOT	VIC OF HWY 12 AT PINE STE
NW	SE	24	7N	35E	114	514050	Decommissioned	1/16/2008	10	WSDOT	VIC OF HWY 12 AT PINE STR
NW	SE	24	7N	35E	115	514052	Decommissioned	1/16/2008	13	WSDOT	VIC OF HWY 12 AT PINE STR
NW	SE	24	7N	35E	116	514054	Decommissioned	1/16/2008	10	WSDOT	VIC OF HWY 12 AT PINE STR
NW	SE	24	7N	35E	117	514056	Decommissioned	1/16/2008	13	WSDOT	VIC OF HWY 12 AT PINE STR
NW	SE	24	7N	35E	I18	514058	Decommissioned	1/16/2008	13	WSDOT	VIC OF HWY 12 AT PINE STF
NW	SE	24	7N	35E	119	580100	Resource Protection	6/15/2005		WSDOT	SR 12 VIC DELL STREET. W
NW	SF	24	7N	35F	120	580101	Resource Protection	6/15/2005		WSDOT	SR 12 VIC DELL STREET. W
SW	NF	24	7N	35E	.1	163456	Water	9/11/1979	150	BENIGNO MALIRA	NKA/WALLA WALLA 99362
NW	NW	19	7N	36E	A1	510522	Resource Protection	10/23/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW	NW	19	7N	36F	A2	510523	Resource Protection	10/23/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW/	NW/	19	7N	36F	A3	510525	Resource Protection	10/23/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW	NW	19	7N	36F	A4	510527	Resource Protection	10/24/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW	NW	19	7N	36F	A5	510529	Resource Protection	10/24/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW	NW	19	7N	36F	A6	510531	Resource Protection	10/24/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW/	NW/	19	7N	36F	A7	510533	Resource Protection	10/24/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW/	NW/	19	7N	36F	A8	510535	Resource Protection	10/25/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE
NW	NW	19	7N	36E	A9	510537	Resource Protection	10/25/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE.
				~~-							

Street Address

F, WALLA WALLA 99362 F, WALLA WALLA 99362 F, WALLA WALLA 99362 WALLA WALLA MALLA 99362

WALLA WALLA WALLA WALLA LLA WALLA 99362

LLA WALLA, 99362

LLA

STREET, WALLA WALLA LLA WALLA, 99362

, WALLA WALLA , WALLA WALLA

WALLA, 99362

REET, WALLA WALLA ALLA WALLA 99362 ALLA WALLA 99362

, WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362 , WALLA WALLA 99362

								Completion	Depth		
Qtr	Qtr	Section	Т	R	ID #	Log ID	Туре	Date	(ft)	Owner	Street Address
NIW/	NW	19	7N	36F	Δ10	510539	Resource Protection	10/25/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE, WALLA WALLA 99362
		10	711	265	A10	510535	Resource Protection	10/25/2007	25	DOC/Shannon and Wilson	
		19		305	ATT	510540	Resource Protection	10/25/2007	25		1515 NORTH 151H AVENUE, WALLA WALLA 99502
INVV	INVV	19	/ N	36E	A12	510541	Resource Protection	10/25/2007	25	DOC/Snannon and Wilson	1313 NORTH 13TH AVENUE, WALLA WALLA 99362
NW	NW	19	7N	36E	A13	510542	Resource Protection	10/25/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE, WALLA WALLA 99362
NW	NW	19	7N	36E	A14	510544	Resource Protection	10/25/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE, WALLA WALLA 99362
NW	NW	19	7N	36E	A15	510546	Resource Protection	10/26/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE, WALLA WALLA 99362
NW	NW	19	7N	36E	A16	510548	Resource Protection	10/26/2007	25	DOC/Shannon and Wilson	1313 NORTH 13TH AVENUE, WALLA WALLA 99362
		10	7N	365	R1	17/177	Water	7/17/10/5	57		
		19	711	265		174170	Water	7/10/10/15	270		
		19	71N	305	DZ	1/41/0	water	7/16/1945	270		
NW	NE	19	7N	36E	C1	189666	Resource Protection	3/16/1999	33	City of Walla Walla	812 REES AVE, WALLA WALLA
NW	NE	19	7N	36E	C2	189669	Resource Protection	3/16/1999	30	City of Walla Walla	812 REES AVE, WALLA WALLA
NW	NE	19	7N	36E	C3	189670	Resource Protection	3/16/1999	30	City of Walla Walla	812 REES AVE, WALLA WALLA
NW	NW	19	7N	36E	D1	430299	Resource Protection	6/22/1990	18	D&K FROZEN FOODS	1164 DELL AVENUE, WALLA WALLA, 99362
NW	NW	19	7N	36E	D2	430300	Resource Protection	6/28/1990	17	D&K FROZEN FOODS	1164 DELL AVENUE WALLA WALLA 99362
		10	711	265	D2	420200	Wotor	4/20/1005	225		1164 Dell AVENUE, WALLA WALLA 00262
		19	711	305	5	430302	Water	4/29/1900	225		1104 DELLAVENUE, WALLA WALLA, 99502
SW	NE	19	/N	36E	E	186105	vvater	5/20/1988		UNOCAL STATIONS / W2 CO.	-
SW	NW	19	7N	36E	F1	499010	Water	9/27/2007	221	AMERICAN ROCK PROP	1430 DELL AVENUE, WALLA WALLA 99362
SW	SE	19	7N	36E	F2	430301	Water	3/21/1990	158	BLUE MOUNTAIN ASPHALT CO.	1360 DELL AVENUE, WALLA WALLA, 99362
SE	NW	19	7N	36E	G1	430298	Resource Protection	5/17/1991	13	D&K FROZEN FOODS	1164 DELL AVENUE, WALLA WALLA, 99362
SE	NW	19	7N	36F	G2	167105	Water			GENERAL FOODS CORP. BIRD'S EYE	
0L 0L		10	71	265	62	202716	Posourco Protoction	2/19/10/6	1 1 2 2		
		19		300		293710	Resource Protection	3/10/1940	1,123	UNION DAGIELO	
500	INE	19	7 IN	36E	н	186049	Resource Protection	10/28/1990			N 91H AVE AND N REES, WALLA WALLA
NE	SW	19	7N	36E	11	430303	Water	12/15/1988	230	D&K FROZEN FOODS	1164 DELL AVENUE, WALLA WALLA, 99362
NE	SW	19	7N	36E	12	172317	Water	8/1/1941		ROBERT LINCOLN	
NE	SW	19	7N	36E	13	382230	Resource Protection	5/11/2004		DOC	1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	13	382231	Resource Protection	5/11/2004		DOC	1313 N 13 AVE. WALLA WALLA
NE	SW	19	7N	36E	13	382232	Resource Protection	5/11/2004		DOC	
	S/W	10	711	265	10	202202	Resource Protection	5/11/2004		DOC	
	300	19		305	10	302233	Resource Protection	5/11/2004			1313 N 13 AVE, WALLA WALLA
NE	500	19	7 IN	36E	17	382234	Resource Protection	5/12/2004			1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	18	382235	Resource Protection	5/12/2004		DOC	1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	19	382236	Resource Protection	5/12/2004		DOC	1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	110	382237	Resource Protection	5/12/2004		DOC	1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	111	382238	Resource Protection	5/12/2004		DOC	1313 N 13 AVE. WALLA WALLA
NE	SW	19	7N	36E	112	382230	Resource Protection	5/13/2004		DOC	1313 N 13 AVE WALLA WALLA
	S/W	10	711	265	112	202200	Resource Protection	5/12/2004		DOC	
	300	19	711	305	113	302240	Resource Protection	5/15/2004			1515 N 15 AVE, WALLA WALLA
INE	500	19	/ IN	30E	114	382241	Resource Protection	5/13/2004			1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	115	382242	Resource Protection	5/13/2004		DOC	1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	116	382243	Resource Protection	5/13/2004		DOC	1313 N 13 AVE, WALLA WALLA
NE	SW	19	7N	36E	117	295792	Resource Protection		18	Walla Walla	-
NE	SW	19	7N	36E	118	295793	Resource Protection		18	Walla Walla	
NE	SW	19	7N	36E	119	295794	Resource Protection		18	Walla Walla	
	S/W	10	71	265	120	205705	Resource Protection		22		
	<u>0</u>	10	7 11	20E	120	230130	Resource Frotection		20		
INE	377	19	/ IN	30E	121	290/96	Resource Protection		23		
NE	SW	19	7N	36E	122	295797	Resource Protection		23	Walla Walla	
NE	SW	19	7N	36E	123	297069	Water			WALLA WALLA CANNING CO PLANT WELL #1	-
NE	SW	19	7N	36E	124	295798	Resource Protection			WALLA WALLA FARMERS CO - OP	
NE	SW	19	7N	36E	125	295799	Resource Protection			WALLA WALLA FARMERS CO - OP	
NE	SW	10	7N	36E	126	186333	Water	5/8/1087	22		_
	SW	10	711	265	120	215746	Recourse Brotection	0/12/2001	15		
	300	19		305	JI	313740	Resource Protection	0/13/2001	15		
NVV	SW	19	/N	36E	J2	315757	Resource Protection	9/14/2001	25	AGRIPAC FROZEN FOODS	1164 DELL AVE, WALLA WALLA
NW	SW	19	7N	36E	J3	315758	Resource Protection	9/14/2001	25	AGRIPAC FROZEN FOODS	1164 DELL AVE, WALLA WALLA
NW	SW	19	7N	36E	J4	167486	Water	7/21/1954	64	H. J. PHINNEY	
NW	SW	19	7N	36E	J5	171948	Water	9/1/1921	30	REMO GRASSIT	
NW	SW	19	7N	36F	J6	380706	Resource Protection	3/29/2004	15	DOC	1313 N 13TH AVE. WALLA WALLA 99362
NI///	SF	10	7N	365	ĸ	1750/0	W/ater	4/2/1996	115	WALT JOHNSON SR	••
C/V/		20	711	265	۲X ۸	110040	Popula Brotaction	1/0/2006	0		
300		20		30⊑	Å	449040		1/9/2000	0		IV EAST NOSE STREET, WALLA WALLA 33302
NVV	NVV	23	/N	35E	A	1/24/8	vvater	//11/19//	204		RTZ BOX 12/A
NW	NE	23	7N	35E	B1	164603	Resource Protection	12/7/1989	130	CITY OF WALLA WALLA	
NW	NE	23	7N	35E	B2	172511	Water	6/6/1970	204	ROGER NIELSEN	

								Completion	Depth		
Qtr	Qtr	Section	Т	R	ID #	Log ID	Туре	Date	(ft)	Owner	
	NW	23	7N	35E	С	169488	Water	8/5/1998	186	KEN PAPLINSKI	800 Rt 2
SW	NW	23	7N	35E	D1	164604	Resource Protection	9/18/1986	151	CITY OF WALLA WALLA	
SW	NW	23	7N	35E	D2	178368	Water	9/25/1991	20	CITY OF WALLA WALLA	
SW	NW	23	7N	35E	D3	514042	Decommissioned	1/16/2008	45	WSDOT	SR12 VIC OF SUDBURY ROA
SW	NW	23	7N	35E	D4	414750	Resource Protection	5/19/2005	16	WSDOT	SR 12 AND SUDBURY ROAD
SE	NW	23	7N	35E	E1	514039	Decommissioned	1/16/2008	40	WSDOT	SR12 VIC OF GOSE ROAD
SE	NW	23	7N	35E	E2	514043	Decommissioned	1/16/2008	44	WSDOT	SR12 MP333.5 APPROX 1/4 M
SE	NW	23	7N	35E	E3	378729	Resource Protection	3/11/2004	44	WSDOT	SR12 MP 333.5 APPROXIMAT
SE	NW	23	7N	35E	E4	414752	Resource Protection	5/17/2005	16	WSDOT	SR 12 AND GOSE ROAD
SE	NW	23	7N	35E	E5	417283	Resource Protection	5/18/2005	40	WSDOT	SR 12/GOSE ROAD
SW	NE	23	7N	35E	F1	514040	Decommissioned	1/16/2008	69	WSDOT	SR12 VIC OF LAST CHANCE
SW	NE	23	7N	35E	F2	347030	Water	9/25/2002	576	HYDRO IRRIGATION DIST 9	HWY 12/GOSE STREET, WAL
SW	NE	23	7N	35E	F3	414754	Resource Protection	5/11/2005	22	WSDOT	SR 12 AND GOSE ROAD
SW	NE	23	7N	35E	F4	417273	Resource Protection	5/12/2005	69	WSDOT	SR 12/LAST CHANCE ROAD
SE	NE	23	7N	35E	G1	514037	Decommissioned	1/16/2008	39	WSDOT	SR12 APPROX 1/2 MILE NOR
SE	NE	23	7N	35E	G2	378732	Resource Protection	3/10/2004	39	WSDOT	SR12 MP 334 APPROXIMATE
SW	NE	23	7N	35E	H1	163152	Water	8/23/1952	53	ANDREA CASTOLDI	Rt 2 Box 541
SW	NE	23	7N	35E	H2	164726	Water	6/12/1949	36	CLIFFORD SANDERS	NKA/LOT 12, ROUTE 2 BOX 5
SW	NE	23	7N	35E	H3	167818	Water	3/21/1956	53	HERBERT & REINARD LAND	NKA/LOT 4 BLK 9 OF BLALOO
SW	NE	23	7N	35E	H4	293843	Water	4/2/1960	160	JACK MC KINNON	NKA/LOT 2, BLK 3 OF BLALO
SW	NE	23	7N	35E	H5	429992	Water	8/23/1952	53	STEVE BENZEL	Rt 2 Box 541
SW	NE	23	7N	35E	H6	173732	Water	6/12/1941	515	U. S. DEPT. OF INTERIOR, BONNEVILLE POWER ADMIN	
NW	SW	23	7N	35E	11	293409	Resource Protection		20	BENNEVILLE POWER ADMIN.	
NW	SW	23	7N	35E	12	293410	Resource Protection		20	BENNEVILLE POWER ADMIN.	
NW	SW	23	7N	35E	13	293411	Resource Protection		60	BENNEVILLE POWER ADMIN.	
NW	SW	23	7N	35E	14	293412	Resource Protection		60	BENNEVILLE POWER ADMIN.	
NW	SW	23	7N	35E	15	309261	Decommissioned	5/29/2001	18	BONNEVILLE POWER ADMIN	
NW	SW	23	7N	35E	16	309262	Decommissioned	5/29/2001	58	BONNEVILLE POWER ADMIN	
NW	SW	23	7N	35E	17	163861	Water	9/8/1976		BONNEVILLE POWER ADMINISTRATION	
NW	SW	23	7N	35E	18	429993	Resource Protection	1/18/1990	60	BONNEVILLE POWER ADMINISTRATION	NKA/WELL #5, ROUTE 5/BOX
NW	SW	23	7N	35E	19	429994	Resource Protection	1/12/1990	20	BONNEVILLE POWER ADMINISTRATION	NKA/ROUTE 5/BOX 16&HWY
NW	SW	23	7N	35E	I10	429995	Resource Protection	1/9/1990	60	BONNEVILLE POWER ADMINISTRATION	NKA/WELL #1, ROUTE 5 BOX
NW	SW	23	7N	35E	I11	429996	Resource Protection	1/12/1990	60	BONNEVILLE POWER ADMINISTRATION	NKA/WELL #2, ROUTE 5 BOX
NW	SW	23	7N	35E	I12	429997	Resource Protection	1/10/1990	20	BONNEVILLE POWER ADMINISTRATION	NKA/WELL #3, ROUTE 5 BOX
NW	SW	23	7N	35E	l13	429998	Resource Protection	1/12/1990	20	BONNEVILLE POWER ADMINISTRATION	NKA/WELL #4, ROUTE 5 BOX
NW	SW	23	7N	35E	114	172458	Water	2/19/1976	192	ROBIN M./SHARON R. SMITH	
NE	SE	23	7N	35E	J	171755	Water	4/21/1947	350	B. W. BLAIR	NKA/WALLA WALLA, 99362

Notes:

-- Data Not Available

Street Address

AD

MILE NORTH TELY 1/4 MILE NORTH,WALLA

E ROAD LLA WALLA 99362

RTH OF MP334 ELYT 1/2 MILE NORTH,WALLA WALLA 99362

554-A, WALLA WALLA OCK ORCHARDS OCK ORCHARDS

X 126&HWY 12 ' 12 X 126, WALLA WALLA X 126, WALLA WALLA X 126, WALLA WALLA X 126, WALLA WALLA

Final Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Boring No.	Depth, ft bgs	PID (ppm)	O ₂ %	H₂S (ppm)	CO (ppm)	%LEL
Landfill						
P-1	4–6	0	19.5	0	4	0
	8–10	0	19.2	0	27	0
	12–14	0	19.9	0	3	0
	16–18	0	19.9	0	3	0
P-2	4–6	0	20	NA	2	NA
	8–10	0	16.2	0	29	0
	12–14	0	16.9	0	50	0
	16–18	0	18.4	NA	207	6
	20–22	0	17.4	0	14	3
P-3	4–6	0	18.2	0	4	0
	8–10	0	20.7	0	0	0
	12–14	0	14.2	0	7	0
	16–18	0.3	15.4	0	7	0
P-4	4–6	0	2.4	0	63	52
	8–10	0.7	2.8	0	36	>100
	12–14	0	1.2	0	75	94
	16–18	0	4.1	0	190	>100
	18–20	0	7.6	0	500	98
P-5	4–6	0	1.1	0	100	43
	8–10	0	0.8	0	5	40
	12–14	0	8.9	0	108	35
	16–18	0	17.8	0	60	20
P-6	4–6	0	12.9	0	113	20
	8–10	0.4	14.7	0	40	5
	12–14	0.9	13.8	0	50	10
	16–18	0	12.1	0	11	8
P-7	4–6	0.8	11.8	0	11	3
	8–10	1	8.6	0	4	3
	12–14	0.8	6.9	0	43	3
	16–18	1	5.4	0	51	3
P-8	4–6	0.1	16.2	0	12	3
	8–10	0	19.5	0	58	3
	12–14	0	16.5	0	65	5
	16–18	0	18	0	72	2

Table 3. Field Gas Measurements from Soil Gas Probes

(Table Continues)

Final Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Boring No.	Depth, ft bgs	PID (ppm)	O ₂ %	H₂S (ppm)	CO (ppm)	%LEL
Landfill (continued)						
P-9	4–6	0	11.3	0	28	0
	8–10	0	11	0	229	12
	12–14	NA	9.6	0	256	8
	16–18	NA	11	0	209	12
P-10	4–6	6	15.1	0	45	0
	8–10	0	16.8	0	64	3
	12–14	0	18.2	0	24	0
	16–18	NA	12.2	0	150	6
P-11	4–6	NA	18.4	0	23	0
	8–10	NA	17.2	0	48	2
	12–14	NA	17.7	0	28	0
P-12	4–6	NA	20.2	0	14	0
	8–10	0	19.7	0	152	3
	12–14	0	17.5	0	34	0
	16–18	0	17.2	0	86	2
P-13	4–6	0	20.7	0	0	0
	8–10	0	16.7	0	45	0
	12–14	0	13.5	0	36	0
	16–18	0	15.2	0	109	2
P-14	4–6	0	19	0	25	0
	8–10	0	19.6	0	50	0
	12–14	NA	18.8	0	130	6
	16–18	NA	17.9	0	214	7
P-15	4–6	0	20.7	0	0	0
	8–10	0	13	0	67	0
	12–14	0	11.6	0	40	0
	16–18	0	14.1	0	26	0
AOC 2						
I-P1	4–6	0	20.5	NA	35	NA
	8–10	0	NA	NA	NA	NA
	12–14	0	NA	NA	NA	NA
AOC 5 (incorrect AOC	(2) in sample ID	s)				
I-P2	4–6	NA	16.8	NA	131	4
	8–10	NA	20	NA	98	0
	12–14	NA	19.5	NA	200	2
	-	-		-	-	

Table 3. Field	d Gas Measurements	from Soil Gas	Probes	(Continued)
			110000	

(Table Continues)

Final Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Boring No.	Depth, ft bgs	PID (ppm)	O ₂ %	H₂S (ppm)	CO (ppm)	%LEL
AOC 3						
MP-P1	4–6	0	20	0	24	0
	8–10	NA	19	0	100	4
	12–14	0	19.5	NA	68	NA
	16–18	0	NA	NA	NA	NA
AOC 6						
PH-P1	4–6	0	18	0	225	8
	8–10	0	17.5	0	20	7
	12–14	0	17.5	0	83	3
	16–18	0	18.5	0	75	2

Table 3. Field Gas Measurements from Soil Gas Probes (Continued)

	Table 4. Groundwater Monitoring Data														
			Date	7/12	2/2010	10/2	5/2010	2/7	/2011	6/20)/2011	9/19	9/2011	12/1:	2/2011
	Northing (USft)	Easting (USft)	Top of Casing Elevation (USft)	DTW (btoc)	Elevation (USft)	DTW (btoc)	Elevation (USft)	DTW (btoc)	Elevation (USft)	DTW (btoc)	Elevation (USft)	DTW (btoc)	Elevation (USft)	DTW (btoc)	Elevation (USft)
WSP Mon	itoring Wells														
MW-1	280824.371	2181490.37	913.14	60.75	852.39	62.4	850.74	59.62	853.52	58	855.14	59.49	853.65	59.72	853.42
MW-2	280575.923	2180188.99	893.01	43.17	849.84	45.04	847.97	42.49	850.52	40.99	852.02	42.14	850.87	42.44	850.57
MW-3	280310.23	2181145.54	923.82	72.06	851.76	73.63	850.19	70.75	853.07	69.08	854.74	70.59	853.23	70.83	852.99
MW-5	279792.103	2183540.86	938.06	82.41	855.65	82.25	855.81	79.07	858.99	77.3	860.76	79.93	858.13	79.89	858.17
MW-6	278159.132	2184308.72	911.05	24.19	886.86	24.76	886.29	23.57	887.48	23.04	888.01	25.56	885.49	26.47	884.58
MW-7	278805.856	2184222.73	913.21	58.04	855.17	57.33	855.88	53.69	859.52	52.03	861.18	55.17	858.04	55.13	858.08
MW-8	279452.553	2184148.45	944.76	92.8	851.96	89.54	855.22	86.58	858.18	84.78	859.98	87.73	857.03	87.36	857.40
MW-9	281001.894	2183205.74	937.51	82.49	855.02	84.1	853.41	81.07	856.44	79.13	858.38	80.81	856.70	81.01	856.50
MW-10	279182.69	2182843.83	928.46	75.86	852.60	74.41	854.05	71.26	857.20	69.6	858.86	72.09	856.37	72.12	856.34
MW-11	279500.998	2182440.01	923.74	70.72	853.02	70.8	852.94	67.7	856.04	65.93	857.81	68.09	855.65	68.2	855.54
MW-12	279967.379	2182346.33	924.18	70.62	853.56	71.55	852.63	68.66	855.52	66.72	857.46	68.61	855.57	68.78	855.40
MW-13	278753.212	2181530.41	906.92	54.31	852.61	54.6	852.32	51.63	855.29	50.02	856.90	52.12	854.80	52.25	854.67
MW-14	279907.515	2180863.82	919.36	67.8	851.56	69.31	850.05	66.34	853.02	64.79	854.57	66.29	853.07	66.55	852.81
MW-15*	278971.142	2185598.62	959.10									99.54	859.56	99.68	859.42
Sudbury L	andfill Monitor	ing Wells													
SLF-7	UN	UN	884.89			43.72	841.17	41.55	843.34	40.65	844.24	41.47	843.42		
SLF-9	UN	UN	901.44			¹	 ¹	<u> </u>	¹	59.73	841.71	60	841.44		
SLF-10	UN	UN	869.81			26.52	843.29	24.51	845.30	23.16	846.65	24.28	845.53		

Notes:

btoc = Below top of casing.

DTW = Depth-to-water.

UN = Coordinates unavailable.

USft = United States feet.

-- = Depth-to-water not collected.

* = Well installed in the third quarter of 2011.

¹ Water level meter probe diameter too wide to sound depth from access port at top of well, no water level collected.

Table 5. Potential Applicable or Relevant and Appropriate Requirements (ARARs)

ARAR	Description	
Soils		
Model Toxics Control Act (WAC 173-340-740, -747)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for soil, including derivation of soil concentrations protective of groundwater.	MTCA cleanup levels are a
Groundwater		
EPA Underground Injection Control Regulations (40 CFR 144 and 146)	Regulates injections of underground sources of drinking water by specific classes of injection wells.	Relevant to use of any clea water aquifer.
Safe Drinking Water Act, Primary Drinking Water Regulations (40 Code of Federal Regulations [CFR] 141)	These regulations protect the quality of public drinking water supplies through regulation of chemical parameters and constituent concentrations as maximum concentration limits (MCLs).	MCLs are potentially releva drinking water.
Model Toxics Control Act (WAC 173-340-720)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for groundwater.	MTCA cleanup levels are a clean up actions approved the water quality standards within Chapter 173-200 WA
State Water Code and Water Rights (Chapters 173-150 & 154 WAC)	Establishes rights of well owners to have adequate water supplies and establishes permit program for groundwater withdrawal.	Applies to groundwater ext
Surface Water		
Clean Water Act Section 304 – Federal Ambient Water Quality (National Recommended Water Quality Criteria, November 2002) (EPA-822-R-02-047)	Provides chemical concentrations for acceptable ambient water quality.	Potentially relevant and app discharges to surface wate
Clean Water Act, National Pollutant Discharge Elimination System (40 CFR Part 122-125) and Washington State National Pollutant Discharge Elimination System Permit Program (Chapter 173-220 WAC).	The National Pollutant Discharge Elimination System (NPDES) program requires that permits be obtained for point-source discharges of pollutants to surface water. Under this regulation, a point-source discharge to a surface water body cannot cause an exceedance of water quality standards in the receiving water body outside the mixing zone.	Substantive regulatory requapplicable to the direct disc
Clean Water Act's National Toxics Rule (NTR) (40 CFR 131.36)	Provides values that have to be met for point-source discharges to surface water.	Potentially applicable to po ditches should cleanup acti
Stormwater Permit Program (40 CFR 122.26)	Best management practices (BMPs) must be used and appropriate monitoring performed to ensure that stormwater runoff does not cause an exceedance of water quality standards in a receiving surface water body.	Substantive requirements of discharges associated with applicable to cleanup action
Stormwater Management (Chapter 173-220 WAC)	Best management practices (BMPs) must be used and appropriate monitoring performed to ensure that stormwater runoff does not cause an exceedance of water quality standards in a receiving surface water body.	Substantive requirements of discharges associated with applicable to cleanup action
Washington State Water Quality Standards for Surface Waters (Chapter 173-201A WAC)	Washington State water quality standards protect freshwater aquatic life by specifying protection criteria by stretch of surface waters. Chapter 173-201A WAC provides limitations on other parameters such as turbidity, temperature, dissolved oxygen, and pH for protection of organisms. Tributaries of waters whose uses are designated salmon and trout spawning, core rearing and migration, or extraordinary primary contact recreation are protected at the same level as the waters themselves.	The substantive requirement actions affecting surface wa
Model Toxics Control Act (WAC 173-340-730)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for surface water.	MTCA cleanup levels may surface water.
Air		
National Ambient Air Quality Standards (40 CFR 50.6, 50.12)	Provides acceptable ambient air quality levels for particulate matter and lead.	Applicable to earth-moving mixing or other processes t
National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Part 261)	Establishes specific emissions levels allowed for toxic air pollutants.	Applicable to treatment alter
Model Toxics Control Act (WAC 173-340-750)	MTCA regulates the investigation and cleanup of releases to the environment that may pose a threat to human health or the environment. Establishes cleanup levels for air.	MTCA cleanup levels may

(Table Continues)

Final

Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Applicability

applicable to soil outside the area of refuse containment.

anup action technologies that involve injections into drinking

ant and appropriate where groundwater is a potential source of

applicable to groundwater. WAC 173-200-010(3)(c) states that by the department (Ecology) under MTCA are not subject to s for ground waters of the State of Washington contained AC.

raction.

propriate to ambient surface water quality in and point-source or should cleanup activities cause a discharge to surface water.

uirements of the NPDES permit program are potentially charge of treated groundwater to a surface water body.

bint-source discharges to surface water and on-site stormwater tivities cause discharge to surface water.

of the general stormwater permit program for stormwater n construction activities disturbing over 1 acre are potentially ons at the Landfill.

of the general stormwater permit program for stormwater n construction activities disturbing over 1 acre are potentially ns at the Landfill.

ents of this regulation are potentially applicable for cleanup vater.

be applicable if cleanup activities cause a discharge to

activities as well as to treatment processes that may include that result in potential releases of particulates or lead.

ernatives that may emit toxic pollutants to the air.

be applicable if cleanup activities cause a release to air.

Table 5. Potential Applicable or Relevant and Appropriate Requirements (ARARs) (Continued)

ARAR	Description	
Miscellaneous		
Endangered Species Act (50 CFR Parts 17, 402)	Section 7 of the Endangered Species Act (ESA) and 40 CFR Part 402 require that federal agencies consider the effects of their proposed actions on federal listed species. It requires consultation between the agency proposing the action and the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries, as appropriate. Preparation of a biological assessment is conducted, addressing the potential effects to listed species in the area and methods to minimize those effects.	The ESA is potentially appl could possibly use the proje cleanup actions conducted
Native American Graves Protection and Repatriation Act (43 CFR Part 10)	Native American Graves Protection and Repatriation Act regulations protect Native American burials from desecration through the removal and trafficking of human remains and "cultural items," including funerary and sacred objects.	This Act is potentially applied disturbance of Native Amere excavations at the site. Such be inadvertently uncovered
National Historic Preservation Act (36 CFR Parts 60, 63, and 800)	National Historic Preservation Act (NHPA) regulations require federal agencies to consider the possible effects on historic sites or structures of actions proposed for federal funding or approval. Historic sites or structures as defined in the regulations are those on or eligible for the National Register of Historic Places, generally at least 50 years old.	This Act is potentially applied be present in the area.
State Environmental Policy Act (SEPA) (Chapter 197-11 WAC)	Requires a review of potential damage that occurs to the environment as a result of man's activities.	SEPA checklist may be req site.
Resource Conservation and Recovery Act (RCRA) – Identification and Listing of Hazardous Waste (40 CFR Part 261-265, 270, and 271)	Defines those solid wastes which are subject to regulation as hazardous wastes, and lists specific chemical and industry-source wastes.	Applicable to determining w RCRA.
RCRA Land Disposal Restrictions (40 CFR 268)	Establishes standards for land disposal of RCRA hazardous waste. Requires treatment to diminish a waste's toxicity and/or minimize contaminant migration.	Applicable if cleanup activit characterized as hazardous
RCRA Subtitle D Nonhazardous Waste Management Standards (40 CFR 257)	Develops standards for the management of non-hazardous wastes.	Applicable if cleanup activit wastes.
Washington Hazardous Waste Management Act (Chapter 173- 303 WAC)	Establishes standards for the generation, transport, treatment, storage, or disposal of designated dangerous waste in the state.	This regulation is potentially contaminated media at the media to be consolidated w Conservation and Recovery
Department of Transportation of Hazardous Wastes (49 CFR 105 – 180)	Establishes specific U.S. Department of Transportation rules and technical guidelines for the off-site transport of hazardous materials.	Applicable to cleanup activi waste.
Washington Minimum Functional Standards for Solid Waste Handling (Chapter 173-304 WAC)	Defines requirements for solid waste management and disposal facilities. Establishes standards for handling and disposal of solid non-hazardous waste in Washington.	Applies to closure and post to October 1991, including monitoring. The Washingto 173-304 WAC is not an AR use this rule as a guideline
Washington Solid Waste Handling Standards (Chapter 173-350 WAC)	Defines requirements for solid waste management and disposal facilities. Establishes standards for handling and disposal of solid non-hazardous waste in Washington.	These regulations are pote potentially relevant and app media management.
Washington Water Well Construction Act Regulations (Chapter 173-160 WAC)	Provides requirements for water well construction.	These regulations are pote supply, monitoring and treat
City of Walla Walla Municipal Code (Title 13 – Water and Sewers)	Local codes provide standards for water supply, sanitary sewer, and stormwater.	Applicable if cleanup activit sewer. Also applicable if cle
City of Walla Walla Municipal Code (Title 15 – Building and Construction)	Local codes provide standards for all building and construction activities, including building construction and grading.	Plans review and building p construction of buildings or
City of Walla Walla Municipal Code (Title 21 – Environment)	Requires a review of potential damage that occurs to the environment as a result of man's activities in accordance with State SEPA requirements.	SEPA checklist may be req site.

Final

Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Applicability

licable to cleanup actions because federal threatened species ject area. Therefore, they could potentially be affected by I at the site.

icable to cleanup actions because it is possible that the rican materials could occur as a result of work in subsurface ch materials are not known to be present at the site, but could d during soil removal.

cable to subsurface work at site. No such sites are known to

quired prior to construction of a cleanup action system at the

whether wastes are considered hazardous wastes under

ies generate and include land disposal of waste that is s.

ies generate and include the management of non-hazardous

ly applicable to alternatives that would involve handling of site. The area of contamination policy allows contaminated within the same area of a site without triggering Resource ry Act or Washington dangerous waste regulations.

vities that involve the off-site transportation of hazardous

t closure care of solid waste landfill that accepted waste prior capping, installation of gas system, and environmental on State Department of Ecology has determined that Chapter RAR for the facility. However, future actions at the WSP landfill e for post closure care and maintenance.

ntially applicable to solid nonhazardous wastes and are propriate to on-site cleanup actions governing contaminated

entially applicable to the installation, operation, or closure of atment wells at and around the site.

ties require a water supply or discharges to the sanitary eanup or construction activities discharge stormwater.

permits may be required if cleanup activities necessitate the structures.

quired prior to construction of a cleanup action system at the

	Station ID Tank #1-MSC					Tank #3-I	Hospital			Tank #4-M	SC Industries			Tank #8	Unit 1			Tank #9	Unit 5			Tank #10 So				
				Sample ID	MSC-1NE	MSC-1SW	MSC-1B	MSC-1SP	WSP-3NE	WSP-3SW	WSP-3B	WSP-3SP	MSC-2NE	MSC-2NE	MSC-2B	MSC-2SP	WSP-4NE	WSP-4SW	WSP-4B	WSP-4SP	WSP-2NE	WSP-2SW	WSP-2B	WSP-2SP	WSP-1NE	WSP-1SW
				Depth (ft bgs)	4.5	4.5	9	0	4.5	4.5	9	0	4.5	4.5	9	0	5.5	5.5	9	0	4.5	4.5	9	0	4.5	4.5
ANALYTE				Location	Sidewall	Sidewall	Bottom	Stockpile	Sidewall	Sidewall	Bottom	Stockpile	Sidewall	Sidewall	Bottom	Stockpile	Sidewall	Sidewall	Bottom	Stockpile	Sidewall	Sidewall	Bottom	Stockpile	Sidewall	Sidewall
				Sample Type	Composite	Composite	Grab	Composite	Composite	Composite	Grab	Composite	Composite	Composite	Grab	Composite	Composite	Composite	Grab	Composite	Composite	Composite	Grab	Composite	Composite	Composite
				Date Sampled	2/27/96	2/27/96	2/27/96	2/27/1996	2/24/96	2/24/96	2/24/96	2/24/1996	2/28/96	2/28/96	2/28/96	2/28/1996	2/25/96	2/25/96	2/25/96	2/25/1996	2/24/96	2/24/96	2/24/96	2/24/1996	2/24/96	2/24/96
		MTCA A	MTCA B	MTCA B Non-																						
	Units	Unrestricted	Carcinogen	carcinogen																						
TOTAL PETROLEUM HYDROCARBONS																										
Gasoline Range Organics	mg/kg	30/100 ⁴	-	-						-		-														
Diesel Range Organics	mg/kg	2,000	-	-				210		-		-				9	6	2 28	3	47	7	·		. 59		
Lube Oil Range Organics	mg/kg	2,000	-	-						-		-														
AROMATIC HYDROCARBONS																										
Benzene	mg/kg	0.03	18	320	NT	NT	NT	NT	NT	N	г NT	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	r nt	NT	NT	NT
Toluene	mg/kg	7	-	6,400	NT	NT	NT	NT	NT	N	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	r nt	- NT	NT	NT
Ethylbenzene	mg/kg	600	-	8,000	NT	NT	NT	NT	NT	N	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	r nt	- NT	NT	NT
m,p-Xylene	mg/kg	-	-	16,000	NT	NT	NT	NT	NT	NT	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	Γ NT	- NT	NT	. NT
o-Xylene	mg/kg	-	-	16,000	NT	NT	NT	NT	NT	NT	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	Γ NT	- NT	NT	. NT
Total Xylenes	mg/kg	9	-	16,000	NT	NT	NT	NT	NT	NT	г пт	N	r nt		NT N	IT N	T N	T N	Γ N	T N	T NT	. NI	Γ NT	- NT	NT	. NT
VOLATILE ORGANIC COMPOUNDS																										
Acetone	mg/kg	-	-	72,000	NT	NT	NT	NT	NT	NT	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	Γ NT	- NT	NT	. NT
Carbon disulfide	mg/kg	-	-	8,000	NT	NT	NT	NT	NT	NT	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. NI	Γ NT	- NT	NT	. NT
2-Butanone (MEK)	mg/kg	-	-	48,000	NT	NT	NT	NT	NT	NT	г пт	N	r nt		NT N	IT N	T N	IT NI	Γ N	T N	T NT	. N1	Γ NT	- NT	NT	. NT
Chloroform	mg/kg	-	-	800	NT	NT	NT	NT	NT	NT	г NT	NT	I NT		NT N	IT N	T N	T N	Γ N	T N	T NT	. NT	T NT	- NT	NT	. NT
Trichloroethene (TCE)	mg/kg	0.03	21.7	40	NT	NT	NT	NT	NT	NT	г пт	NT	I NT		NT N	IT N	T N	T N	Γ N	T N	T NT	. N1	Γ NT	- NT	NT	. NT
Tetrachloroethene (PCE)6/7	mg/kg	0.05	11/476	480						-		-														
1,2,4-Trimethylbenzene	mg/kg	-	-	-	NT	NT	NT	NT	NT	NT	г пт	NT	r nt		NT N	IT N	т м	IT NI	Γ N	T N	T NT	. NT	r nt	- NT	NT	. NT
p-Isopropyltoluene (cumene)	mg/kg	8,000	-	-	NT	NT	NT	NT	NT	NT	г NT	N	r nt		NT N	IT N	т м	IT NI	Γ N	T N	T NT	. N1	r nt	- NT	NT	. NT
POLYCYCLIC AROMATIC HYDROCARBO	NS ²																									
Napththalene	mg/kg	5	-	1,600	NT	NT	NT	NT	NT	NT	г NT	N	r nt		NT N	IT N	т м	IT NI	Γ N	T N	T NT	. N1	r nt	- NT	NT	. NT
2-Methylnaphthalene	mg/kg	-	-	320	NT	NT	NT	NT	NT	NT	г пт	NT	r nt		NT N	IT N	т м	IT NI	Γ N	T N	T NT	. NT	r nt	- NT	NT	. NT
1-Methylnaphthalene	ma/ka	-	35	-	NT	NT	NT	NT	NT	N	г мт	N	r nt	-	NT N	IT N	т м	IT N	Γ N	T N	T NT	. N1	r nt	- NT	NT	. NT
Acenaphthylene	mg/kg	-	-	-	NT	NT	NT	NT	NT	NT	г пт	NT	r nt		NT N	IT N	т м	IT NI	Γ N	T N	T NT	. NT	r nt	- NT	NT	. NT
Acenaphthene	ma/ka	-	-	4,800	NT	NT	NT	NT	NT	N	г мт	N	r nt	-	NT N	IT N	т м	IT NI	Γ N	T N	T NT	. N1	r nt	- NT	NT	. NT
Fluorene	mg/kg	-	-	3,200	NT	NT	NT	NT	NT	N	г NT	N	г лт		NT N	IT N	т т	т л	Γ N	T N	T NT	. N1	r nt	- NT	NT	. NT
Phenanthrene	ma/ka	-	-	-	NT	NT	NT	NT	NT	N	г мт	N	r nt	-	NT N	IT N	т м	IT N	Γ N	T N	т пт	. N1	r nt	- NT	NT	. NT
Anthracene	ma/ka	-	-	24,000	NT	NT	NT	NT	NT	N	г мт	N	r nt	-	NT N	IT N	т м	IT N	Γ N	T N	т пт	. N1	r nt	- NT	NT	. NT
Fluoranthene	ma/ka	-	-	3,200	NT	NT	NT	NT	NT	N	г мт	N	r nt		NT N	IT N	т	IT NI	- N	T N	T NT	. N1	r nt	- NT	NT	. NT
Pyrene	ma/ka	-	-	2,400	NT	NT	NT	NT	NT	N	г NT	N	r NT		NT N	IT N	T N	T N	- N	T N	T NT	NT	T NT	- NT	NT	NT
Benzo(g,h,i)pervlene	ma/ka	-	-	-	NT	NT	NT	NT	NT	N	г мт	N	r nt		NT N	IT N	т	IT NI	- N	T N	T NT	. N1	r nt	- NT	NT	. NT
Benzo(a)anthracene*	ma/ka	-	1.4	-	NT	NT	NT	NT	NT	N	г пт	N	r NT		NT N	IT N	T N	T N	- N	T N	T NT	. NT	T NT	- NT	NT	NT NT
Chrysene*	ma/ka	-	140	-	NT	NT	NT	NT	NT	N	г NT	N	r NT		NT N	IT N	T N	T N	- N	T N	T NT	NT	T NT	- NT	NT	. NT
Benzo(b)fluoranthene*	ma/ka	-	1.4	-	NT	NT	NT	NT	NT	N	г мт	N	r nt		NT N	IT N	т	IT NI	- N	T N	T NT	. N1	r nt	- NT	NT	. NT
Benzo(k)fluoranthene*	ma/ka	-	14	-	NT	NT	NT	NT	NT	N	г пт	N	r NT		NT N	IT N	T N	T N	- N	T N	T NT	. NT	T NT	- NT	NT	- NT
Benzo(a)pyrene*	ma/ka	0.1	0.14	-	NT	NT	NT	NT	NT	NT	г пт	NT	r NT		NT N	IT N	T N	IT NI	- N	T N	T NT	NT	T NT	- NT	NT	- NT
Indeno(1.2.3-cd)pyrene*	ma/ka	-	1.4		NT	NT	NT	NT	NT	N	г пт	N	r NT		NT N	IT N	T N	IT NI	- N	T N	T NT	. NT	T NT	- NT	NT	. NT
Dibenzo(a,h)anthracene*	ma/ka		0.14	-	NT	NT	NT	NT	NT	N	г мт	NT		-		IT N	т м	т м	- N	T N	т пт			- NT	NT	. NT
Total cPAHs as Benzo(a)pyrepe ³	inging		0.14																							
Total CI Al IS as Delizo(a)pyrelie	mg/kg	0.1	0.14	-	NT	NT	NT	NT	NT	NT	г NT	N	r nt		NT N	IT N	т м	IT NI	Γ N	T N	T NT	. NT	T NT	- NT	NT	NT
TOTAL METALS ²																										
Arsenic	mg/kg	20	0.67	24	NT	NT	NT	NT	NT	NT	г NT	N	r nt		NT N	IT N	т м	т п	r N	т п	г пт	. NI	r nt	- NT	NT	. NT
Cadmium	mg/kg	2	-	-	NT	NT	NT	NT	NT	N	г NT	NT	r NT		NT N	IT N	т м	IT N1	r N	T N	T NT	NT	T NT	NT	NT	NT
Chromium	mg/ka	2000	-	-	NT	NT	NT	NT	NT	N	r nt	N	г лт		NT N	IT N	т м	т л	Γ N	т м	t NT	. пт	r nt	- NT	NT	. NT
Copper	mg/kg	-		3,200	NT	NT	NT	NT	NT	NT	г NT	NT	r NT		NT N	IT N	т м	IT N1	r N	T N	T NT	NT	T NT	NT	NT	NT
Lead	mg/ka	250	-	-	NT	NT	NT	NT	NT	N	r nt	N	г лт		NT N	IT N	т м	т л	Γ N	т п	т пт	. пт	r nt	- NT	NT	. NT
Manganese	mg/ka	-	-	11,000	NT	NT	NT	NT	NT	N	г NT	N	r NT		NT N	IT N	T N	IT N1	Γ N	T N	T NT	NT	T NT	- NT	NT	NT
<u> </u>	5 5												1													

Notes:

² Only analytes with a minimum of one detection are listed.

³ Total of individal cPAHs (indicated by *), benzo(a)pyrene toxcity equivalency factor; half the practical quantitation limit was used for non-detect values.

⁴ If benzene present - 30 mg/kg, if no benzene present - 100 mg/kg.

⁶ Protection of soil injestion/protection of groundwater
⁶ TCE and PCE concentrations in groundwater were originally screened to **bolded** levels.
Changes to cleanup levels occurred following initial screening as described in Section 6.1.
New cleanup levels are shown here and in Table 13.

Screening level exceedances shown in this table reflect new screening levels established by Ecology in June 2012.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons.

U Analyte not detected above given practical quantitation limit. J Sample analyzed past the recommended hold time, value is an estimate.

UJ Analytic and year back above given practical quantitation limit. Sample analyzed past the recommended hold time, value is an estimate.

°C Degrees celcius.

- mg/l Milligrams per liter.
- µS/m Microsiemens per meter.
- mV Millivolts.

- No cleanup level established for this parameter

-- = Result not detected. Reporting limit or method detection limit not listed in historic data.

- NTU Nephelometric tubidity unit.
- S.U. Standard units.
- µg/l micrograms per liter.

UN Depth of sample collection unknown. NT Parameter was not tested.

UC Source is unclear whether this parameter was analyzed.

^ Orginal sample was non-detect. Result presented is the duplicate result.

				Station ID	uth Wing			Tank #1	IMU			Tank	GF			Tank T ₁₃			GP1	13		MW-7	MW-8	MW-9	MW-10
				Sample ID	WSP-1B	WSP-SP	IMU-1NE	IMU-1West	IMU-B	IMU-1SP	GF-1NE	GF-1SW	GF-1B	GF-1SP	S1-V2	S2-V2	S3	GP13	GP13	GP13	GP13	MW7-SB6	MW8-SB6	MW9-SB6	MW10-SB6
				Depth (ft bgs)	10	0	4.5	4.5	8	0	UN	UN	UN	UN	UN	UN	UN	0-3	3-6	6-9	9-12	6	6	6	6
				Location	Bottom	Stockpile	Sidewall	Sidewall	Bottom	Stockpile	Sidewall	Sidewall	Bottom	Stockpile	Bottom	Sidewall	Sidewall	NA	NA	NA	NA	Subsurface	Subsurface	Subsurface	Subsurface
				Sample Type	Grab	Composite	Composite	Composite	Grab	Composite	Composite	Composite	Grab	Composite	Grab	Grab	Grab	NA	NA	NA	NA	Grab	Grab	Grab	Grab
		NTOAA	MTO A D	Date Sampled	2/24/96	2/24/1996	2/29/96	2/29/96	2/29/96	2/29/1996	2/27/96	2/27/96	2/27/96	2/27/1996	8/5/09	8/5/09	8/5/09	5/1/99	5/1/99	5/1/99	5/1/1999	5/4/10	5/4/10	5/3/10	5/12/10
	Unite	MICA A	Carcinogen	MICA B Non-																					1
TOTAL PETROLEUM HYDROCARBONS	Units	omestiteteu	ouremogen	careinogen																					1
Gasoline Range Organics	ma/ka	30/100 ⁴													7 22 11	6 44 11	6 72 11					77 11	73 11	7 11	140
Diesel Range Organics	ma/ka	2 000							640	280					12 2 1	319	11 7 11					33 11	29 11	29 11	29 1
Lube Oil Range Organics	ma/ka	2,000							040	200					30.611	28.611	29.311					55 U	58 11	29 U 59 U	58 1
AROMATIC HYDROCARBONS		2,000													00.0 0	20.0 0	20.0 0					00 0		00 0	00 0
Benzene	ma/ka	0.03	18	320	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT	0.0217 U	0.0193 U	0.0202 U	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
Toluene	ma/ka	7	-	6.400	NT	NT	N	Г NT	NT	NT	NT	NT	NT	NT	0.289 U	0.258 U	0.269 U	UC	UC	UC	UC	0.006 U	0.006 U	0.0074 U	0.007 U
Ethylbenzene	ma/ka	600	-	8.000	NT	NT	N	г пт	NT	NT	NT	NT	NT	NT	0.289 U	0.258 U	0.269 U	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
m,p-Xylene	ma/ka	-	-	16.000	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0024 U	0.0024 U	0.003 U	0.0028 U
o-Xylene	ma/ka		-	16,000	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
Total Xylenes	ma/ka	9	-	16.000	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	0.867 U	0.773 U	0.807 U	UC	UC	UC	UC	0.0036 U	0.0036 U	0.0045 U	0.0042 U
VOLATILE ORGANIC COMPOUNDS				,																					
Acetone	mg/kg	-	-	72,000	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.04	0.045	0.053	0.04
Carbon disulfide	mg/kg	-	-	8,000	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
2-Butanone (MEK)	mg/kg	-	-	48,000	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.006 U	0.006 U	0.0074 U	0.007 U
Chloroform	mg/kg		-	800	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
Trichloroethene (TCE)	mg/kg	0.03	21.7	40	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
Tetrachloroethene (PCE)6/7	mg/kg	0.05	11/476	480														2.40	0.94	1.4	0.68	0.0012 U	0.0012 U	0.0015 U	0.0014 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
p-Isopropyltoluene (cumene)	mg/kg	8,000	-	-	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0012 U	0.0012 U	0.0015 U	0.0014 U
POLYCYCLIC AROMATIC HYDROCARBON	NS ²																								1
Napththalene	mg/kg	5	-	1,600	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
2-Methylnaphthalene	mg/kg		-	320	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
1-Methylnaphthalene	mg/kg		35	-	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Acenaphthylene	mg/kg	-	-	-	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Acenaphthene	mg/kg	-	-	4,800	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Fluorene	mg/kg	-	-	3,200	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Phenanthrene	mg/kg	-	-	-	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Anthracene	mg/kg	-	-	24,000	NT	NT	N	г NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Fluoranthene	mg/kg	-	-	3,200	NT	NT	N	Γ NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Pyrene	mg/kg	-	-	2,400	NT	NT	N	Γ NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Benzo(g,h,i)perylene	mg/kg	-	-	-	NT	NT	N	F NT	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Benzo(a)anthracene*	mg/kg	-	1.4	-	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Chrysene*	mg/kg	-	140	-	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Benzo(b)fluoranthene*	mg/kg	-	1.4	-	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Benzo(k)fluoranthene*	mg/kg	-	14	-	NT	NT	N	F NT	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Benzo(a)pyrene*	mg/kg	0.1	0.14	-	NT	NT	N	F NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Indeno(1,2,3-cd)pyrene*	mg/kg	-	1.4	-	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Dibenzo(a,h)anthracene*	mg/kg	-	0.14	-	NT	NT	N	r nt	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	0.0087 U	0.0077 U	0.0078 U	0.0078 U
Total cPAHs as Benzo(a)pyrene ³	~~~//~~	0.1	0.14	-	NT	NT	N		NT	NT	NT	NT	NT	. NT	NT	NT	NT			110		0.0066 11	0.0059 11	0.0050 11	0.0050
TOTAL METALS ²	тід/кд				IN I	INT	IN		INT	INI	INT	IN I	INT	IN I	INT	INT	IN I	00	00	00	00	0.0000 0	0.0036 0	0.0059 0	0.0059 0
Arsenic	ma/ka	20	0.67	24	NT	NT	N	гт	NIT	NIT	NT	NT	NIT	NT	7 56	5.06	5 02					13 11	12 11	12 11	10 1
Cadmium	mg/kg	20	- 0.0	24			IN N	- INI F NT							06.7	0.90	0.92					0.65 11	0.58 11	12 0	0.52 1
Chromium	ma/ka	2000		-	NT		N ⁻	. INI Г NT	NT	NIT	NT NT	NT	NT	. NT	18 3	0.2290	12 1					20	0.38 0	17	0.38 0
Copper	ma/ka	-		3 200	NT	NT	N		NT	NIT	NT	NT	NT	. NT	10.5 NT	NT	NT	10	UC			20	24	25	22
Lead	ma/ka	250		-	NT	NT	N ⁻	F NT	NT	NT	NT	NT	NT	. NT	10.2	8 1 9	8,38	UC.	UC	UC		76	97	93	12
Manganese	ma/ka	-		11.000	NT	NT	N	F NT	NT	NT	NT	NT	NT	NT NT	NT	NT	NT	UC	UC	UC	UC	500	540	540	590
				,																					4

Notes:

² Only analytes with a minimum of one detection are listed.

³ Total of individal cPAHs (indicated by *), benzo(a)pyrene toxcity equivalency factor; half the practical quantitation limit was used for non-detect values.

⁴ If benzene present - 30 mg/kg, if no benzene present - 100 mg/kg.

⁶ Protection of soil injestion/protection of groundwater
⁶ TCE and PCE concentrations in groundwater were originally screened to **bolded** levels.
Changes to cleanup levels occurred following initial screening as described in Section 6.1.
New cleanup levels are shown here and in Table 13.

Screening level exceedances shown in this table reflect new screening levels established by Ecology in June 2012.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons.

U Analyte not detected above given practical quantitation limit. J Sample analyzed past the recommended hold time, value is an estimate.

UJ Analytic to detected above given practical quantitation limit. Sample analyzed past the recommended hold time, value is an estimate.

°C Degrees celcius.

- mg/l Milligrams per liter.
- µS/m Microsiemens per meter.

mV Millivolts.

- No cleanup level established for this parameter

-- = Result not detected. Reporting limit or method detection limit not listed in historic data.

NTU Nephelometric tubidity unit.

S.U. Standard units.

µg/l micrograms per liter.

UN Depth of sample collection unknown. NT Parameter was not tested.

UC Source is unclear whether this parameter was analyzed.

^ Orginal sample was non-detect. Result presented is the duplicate result.

				Station ID	MW-11	MW-12	MW-13				Form	er Dry Cleaner				Frmr Mtr Pool	Frmr Accmltn Area	Steam Plant
				Sample ID	MW11-SB6	MW12-SB7	MW13-SB6	02-01-SB-04 (I-P1)	02-01-SB-08 (I-P1)	02-02-SB-12 (I-P2)	02-02-SB-16 (I-P2)	02-02-SB-20 (I-P2)	02-09-SB-04 (I-P9)	02-09-SB-12 (I-P9)	02-06-SB-04 (I-P6)	03-01-SB-04 (MP-P1)	06-01-SB-04 (WH-P1)	07-01-SB-04 (PH-P1)
				Depth (ft bgs)	6	7	6	4	8	12	16	20	4	12	4	4	4	4
ANALTIE				Location	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
				Sample Type	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
				Date Sampled	5/7/10	5/10/10	5/6/10	5/27/10	5/27/10	5/27/10	5/27/10	5/27/10	5/28/10	5/28/10	5/28/10	5/27/10	5/27/10	5/28/10
		MTCA A	MTCA B	MTCA B Non-														
	Units	Unrestricted	Carcinogen	carcinogen														1
TOTAL PETROLEUM HYDROCARBONS																		1
Gasoline Range Organics	mg/kg	30/100*	-	-	8 U	10 U	8 U	NT	NT	NT								
Diesel Range Organics	mg/kg	2,000	-	-	30 U	33 U	30 U	NT	NT	28 U	30 U	NT	NT	NT	31	U 31 U	38	NT
Lube Oil Range Organics	mg/kg	2,000	-	-	59 U	65 U	60 U	NT	NT	56 U	60 U	NT	NT	NT	62	U 62 U	190	NT
AROMATIC HYDROCARBONS																		
Benzene	mg/kg	0.03	18	320	0.0016	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
Toluene	mg/kg	7	-	6,400	0.0068 U	0.0089 U	0.0077 U	NT	0.0066 U	0.0058 U	0.0055 U	0.0057 U	0.0061 U	0.0063 U	0.0073	U 0.0069 U	0.0061 U	NT
Ethylbenzene	mg/kg	600	-	8,000	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
m,p-Xylene	mg/kg	-	-	16,000	0.0027 U	0.0035 U	0.0031 U	NT	0.0026 U	0.0023 U	0.0022 U	0.0023 U	0.0024 U	0.0025 U	0.0029	U 0.0027 U	0.0025 U	NT
o-Xylene	mg/kg	-	-	16,000	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
Total Xylenes	mg/kg	9	-	16,000	0.0041 U	0.0053 U	0.0046 U	NT	0.0039 U	0.0035 U	0.0033 U	0.0034 U	0.0036 U	0.0038 U	0.0044	U 0.0041 U	0.0037 U	NT
VOLATILE ORGANIC COMPOUNDS																		1
Acetone	mg/kg	-	-	72,000	0.042	0.047	0.055	NT	0.0033	0.035	0.021	0.035	0.073	0.077	0.055	0.059	0.059	NT
Carbon disulfide	mg/kg	-	-	8,000	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0015	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
2-Butanone (MEK)	mg/kg	-	-	48,000	0.0068 U	0.0089 U	0.008	NT	0.0066 U	0.0058 U	0.0055 U	0.0057 U	0.0085	0.0088	0.0073	U 0.0086	0.0071	NT
Chloroform	mg/kg	-	-	800	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
Trichloroethene (TCE)	mg/kg	0.03	21.7	40	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0014	0.0015	U 0.0014 U	0.0012 U	NT
Tetrachloroethene (PCE)	mg/kg	0.05	11/476	480	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	1.6	12	0.0021	0.0025	0.024	NT
1,2,4-Trimethylbenzene	mg/kg	-	-	-	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
p-Isopropyltoluene (cumene)	mg/kg	8,000	-	-	0.0014 U	0.0018 U	0.0015 U	NT	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0012 U	0.0013 U	0.0015	U 0.0014 U	0.0012 U	NT
POLYCYCLIC AROMATIC HYDROCARBO	NS ²																	1
Napththalene	mg/kg	5	-	1,600	0.0079 U	0.0087 U	0.015	NT	0.0013 U	0.0075 U	0.0080 U	0.0081 U	0.0012 U	0.0013 U	0.0015	U 0.0083 U	0.020	NT
2-Methylnaphthalene	mg/kg	-	-	320	0.0079 U	0.0087 U	0.027	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT	NT	NT	0.0083 U	0.066	NT
1-Methylnaphthalene	mg/kg	-	35	-	0.0079 U	0.0087 U	0.019	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.051	NT
Acenaphthylene	mg/kg	-	-	-	0.0079 U	0.0087 U	0.008 U	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT	NT	NT	0.0083 U	0.0076 U	NT
Acenaphthene	mg/kg	-	-	4,800	0.0079 U	0.0087 U	0.008 U	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.0076 U	NT
Fluorene	mg/kg	-	-	3,200	0.0079 U	0.0087 U	0.008 U	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT	NT	NT	0.0083 U	0.0076 U	NT
Phenanthrene	mg/kg	-	-	-	0.0079 U	0.0087 U	0.022	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.073	NT
Anthracene	mg/kg	-	-	24,000	0.0079 U	0.0087 U	0.008 U	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.012	NT
Fluoranthene	mg/kg	-	-	3,200	0.0079 U	0.0087 U	0.0086	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.081	NT
Pyrene	mg/kg	-	-	2,400	0.0079 U	0.0087 U	0.0088	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.086	NT
Benzo(g,h,i)perylene	mg/kg	-	-	-	0.0079 U	0.0087 U	0.008 U	NT	NT	0.0075 U	0.0080 U	0.0081 U	NT	NT	NT	0.0083 U	0.034	NT
Benzo(a)anthracene*	mg/kg	-	1.4	-	0.0079 U	0.0087 U	0.008 U	0.030	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.042	NT
Chrysene*	mg/kg	-	140	-	0.0079 U	0.0087 U	0.008 U	0.041	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.061	NT
Benzo(b)fluoranthene*	mg/kg	-	1.4	-	0.0079 U	0.0087 U	0.008 U	0.042	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.039	NT
Benzo(k)fluoranthene*	mg/kg	-	14	-	0.0079 U	0.0087 U	0.008 U	0.035	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.044	NT
Benzo(a)pyrene*	mg/kg	0.1	0.14	-	0.0079 U	0.0087 U	0.008 U	0.044	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.044	NT
Indeno(1,2,3-cd)pyrene*	mg/kg	-	1.4	-	0.0079 U	0.0087 U	0.008 U	0.034	NT	0.0075 U	0.0080 U	0.0081 U	NT	NT	NT	0.0083 U	0.027	NT
Dibenzo(a,h)anthracene*	mg/kg	-	0.14	-	0.0079 U	0.0087 U	0.008 U	0.011	NT	0.0075 U	0.0080 U	0.0081 U	NT NT	NT	NT	0.0083 U	0.011	NT
Total cPAHs as Benzo(a)pyrene	5	0.1	0.14	-	0.0000 11	0.0000 11	0.000	0.000	NT	0.0057 11	0.0000 11	0.0001	NT	NT	NT	0.0062.11	0.061	NT
	тд/кд				0.0060 0	0.0000 0	0.006 0	0.060	INT	0.0057 0	0.0060 0	0.0061 0	IN I	111	INT	0.0063 0	0.061	N1
Arsenic	m alle:	20	0.67	24	10 11	40 11	10 11	NIT	NIT	ыт	NIT	ыт	NIT	NT	NT	NIT	44.11	40.11
Cadmium	mg/кg mg/kg	20	0.67	24	12 U	13 U	12 0										11 U	12 U
Chromium	mg/kg	2	-	-	0.59 U	U.65 U	0.60 0							IN I NT			U.57 U	0.59 U
Coppor	mg/кĝ	2000	-	-	16	18	19		NI	NI	NI NT	NI	NI				12	13
Lead	mg/кg	-	-	3,200	25	25	29								NI NT		24	25
Manganasa	mg/kg	250	-	-	9.6	11	13							IN I NT	NI NT	NI	18	24
wanganese	mg/kg	-	-	11,000	U80	620	720	NI	NÍ	NI	IN I	NI	NI	NI	NI	NI	450	520

² Only analytes with a minimum of one detection are listed.

³ Total of individal cPAHs (indicated by *), benzo(a)pyrene toxcity equivalency factor; half the practical quantitation limit was used for non-detect values.

⁴ If benzene present - 30 mg/kg, if no benzene present - 100 mg/kg.

⁵ Protection of soil injestion/protection of groundwater
 ⁶ TCE and PCE concentrations in groundwater were originally screened to **bolded** levels. Changes to cleanup levels occurred following initial screening as described in Section 6.1. New cleanup levels are shown here and in Table 13.

7 Screening level exceedances shown in this table reflect new screening levels established by Ecology in June 2012.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons.

U Analyte not detected above given practical quantitation limit. J Sample analyzed past the recommended hold time, value is an estimate.

UJ Analytic and detected above given practical quantitation limit. Sample analyzed past the recommended hold time, value is an estimate.

°C Degrees celcius.

mg/I Milligrams per liter. µS/m Microsiemens per meter.

mV Millivolts.

- No cleanup level established for this parameter

-- = Result not detected. Reporting limit or method detection limit not listed in historic data.

NTU Nephelometric tubidity unit.

S.U. Standard units.

µg/l micrograms per liter.

UN Depth of sample collection unknown.

NT Parameter was not tested.

UC Source is unclear whether this parameter was analyzed.

^ Orginal sample was non-detect. Result presented is the duplicate result.

				Sample ID	01-01-TP-08 (TP-1)	01_03_TP_07 (TP_3)	01-04-TP-4 (TP-4)	01-05-TP-07 (TP-5)	01_06_TP_08 (TP_6)	01-08-TP-10 (TP-8)	01_00_TP_10 (TP_0)	01-10-TP-15 (TP-10)	01-12-TP-16 (TP-12)	01-16-TP-12 (TP-16)
				Donth (ft box)	01-01-17-08(17-1)	7	01-04-1F-4 (1F-4) 4	7	01-00-11-08(11-0)	40	10	45	40	42
ANALYTE				Depth (it bgs)	ð Subauríana	/ Subsurfass	4 Subsurfass	/ Subauríasa	8 Subauríana	10 Subourfees	1U Subsurfass	15 Subourfees	16 Subauríana	1Z Subourface
				Location Semula Tune	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface	Subsurface
				Sample Type	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
		ΜΤΟΛΑ	MTCAB	MTCA B Non-	5/24/10	5/24/10	5/24/10	5/24/10	5/24/10	5/24/10	5/24/10	5/24/10	5/24/10	5/25/10
	Units	Unrestricted	Carcinogen	carcinogen										
TOTAL PETROLEUM HYDROCARBONS	onito	eth controlo	Garomogon	ouroniogon										
Gasoline Range Organics	ma/ka	30/100 ⁴			NT	18	NT	7411	NT	NT	NT	6511	NT	110
Diesel Range Organics	ma/ka	2 000	_		NT	13	NT	30 11	NT	31.11	NT	20 11	NT	30.11
Lube Oil Range Organics	ma/ka	2,000			NT	40 680	NT	50 U 60 U	NT	61 U	NT	57 11	NT	60 U
AROMATIC HYDROCARBONS	mg/ng	2,000				000		00.0		010		01 0		00 0
Benzene	ma/ka	0.03	18	320	0 0022 11	0.002211	0.0065.11	0.0015	0.089	0.082	0.0014 []	0.0020.11	0.0015 []	0.20.11
Toluene	ma/ka	7	10	6.400	0.0022 0	0.0022 0	0.0000 0	0.0061 11	0.000	0.002	0.0069 U	0.0020 0	0.0073 U	0.078 11
Ethylbenzene	ma/ka	600		8,000	0.0067 U	0.0052 U	0.005 U	0.0012 11	0.042	0.0134	0.0000 0	0.0020 U	0.0015 U	0.078 11
m.p-Xvlene	ma/ka	-		16,000	0.013 U	0.013 U	0.013 U	0.0072 U	0.0041	0.0034 U	0.0014 0	0.0020 U	0.0019 U	0.078 U
o-Xvlene	ma/ka			16,000	0.0067 U	0.0065 11	0.0065 U	0.0012 11	0.0050	0.0017 U	0.0014 U	0.0020 U	0.0015 U	0.078 []
Total Xylenes	ma/ka	٩		16,000	0.0197 U	0.0195 U	0.0195 U	0.0036 U	0.0000	0.0011 U	0.0014 0	0.0059 U	0.0044 U	0.156 U
VOLATILE ORGANIC COMPOUNDS	mg/ng	5		10,000	0.0101 0	0.0100 0	0.0100 0	0.0000 0	0.0110	0.0001 0	0.0012.0	0.0000 0	0.0011.0	0.100 0
Acetone	ma/ka	-	-	72.000	0.072	0.19	0.032 U	0.093	0.0080 U	0 0084 U	0.081	0 15	0.088	NT
Carbon disulfide	ma/ka	-	-	8.000	0.0022 []	0.0022 11	0.0065 U	0.0012 U	0.0094	0.0018	0.0014 U	0.0020 U	0.0015 U	NT
2-Butanone (MEK)	ma/ka	-	-	48.000	0.011 U	0.013	0.032 U	0.0094	0.0080 U	0.0084 U	0.011	0.016	0.015	NT
Chloroform	ma/ka	-	-	800	0.0022 U	0.0022.11	0.0065 U	0.0013	0.0016 U	0.0017 U	0.0014 U	0.0095	0.0015 U	NT
Trichloroethene (TCE)	ma/ka	0.03	21.7	40	0.0022 U	0.0065 U	0.0065 U	0.0012 U	0.0016 U	0.0017 U	0.0014 U	0.0020 U	0.0015 U	NT
Tetrachloroethene (PCE) ^{6/7}	ma/ka	0.05	11/476	480	0.0067 U	0.052	0.0065 U	0.0012 U	0.0016 U	0.0017 U	0.0014 U	0.013	0.0015 U	NT
1 2 4-Trimethylbenzene	ma/ka	-	-	-	0.0022 U	0.0065 U	0.0065 U	0.0012 U	0.0031	0.0017 U	0.0014 U	0.0020 U	0.0015 U	NT
p-Isopropyltoluene (cumene)	ma/ka	8 000	-	-	0.0022 U	0.0065 U	0.0065 U	0.0012 U	0.0016 U	0.0017 U	0.0044	0.0020 U	0.0015 U	NT
POLYCYCLIC AROMATIC HYDROCARBOI	NS ²	0,000			0.0022 0	0.0000 0	0.0000 0	0.0012 0	0.0010 0	0.0011 0	0.0011	0.0020 0	0.0010 0	
Napththalene	ma/ka	5	-	1.600	0 0022 11	0.012	0.0065 U	0.0083	0.012	0.0081 U	0.0014 U	0.0076 U	0.0015 U	0.0083
2-Methylnaphthalene	ma/ka	-	-	320	NT	0.030	NT	0.012	NT	0.0081 U	NT	0.014	NT	0.014
1-Methylnaphthalene	ma/ka	-	35	-	NT	0.036	NT	0.011	NT	0.0081 U	NT	0.012	NT	0.011
Acenaphthylene	ma/ka	-	-	-	NT	0.0095	NT	0.0080 U	NT	0.0081 U	NT	0.011	NT	0.0081 U
Acenaphthene	ma/ka	-	-	4,800	NT	0.0086 U	NT	0.0080 U	NT	0.0081 U	NT	0.0076 U	NT	0.0081 U
Fluorene	ma/ka	-	-	3,200	NT	0.0086 U	NT	0.0080 U	NT	0.0081 U	NT	0.0076 U	NT	0.0081 U
Phenanthrene	ma/ka	-	-	-	NT	0.056	NT	0.0190	NT	0.0081 U	NT	0.056	NT	0.079
Anthracene	ma/ka	-	-	24,000	NT	0.014	NT	0.0080 U	NT	0.0081 U	NT	0.017	NT	0.014
Fluoranthene	ma/ka	-	-	3,200	NT	0.10	NT	0.017	NT	0.0081 U	NT	0.11	NT	0.11
Pyrene	ma/ka	-	-	2,400	NT	0.090	NT	0.016	NT	0.0081 U	NT	0.12	NT	0.11
Benzo(g,h,i)perylene	mg/kg		-	-	NT	0.033	NT	0.0170	NT	0.0081 U	NT	0.067	NT	0.037
Benzo(a)anthracene*	mg/kg		1.4	-	NT	0.037	NT	0.0081	NT	0.0081 U	NT	0.059	NT	0.050
Chrysene*	mg/kg	-	140	-	NT	0.065	NT	0.014	NT	0.0081 U	NT	0.075	NT	0.062
Benzo(b)fluoranthene*	mg/kg		1.4	-	NT	0.40	NT	0.016	NT	0.0081 U	NT	0.072	NT	0.041
Benzo(k)fluoranthene*	mg/kg	-	14	-	NT	0.035	NT	0.011	NT	0.0081 U	NT	0.067	NT	0.043
Benzo(a)pyrene*	mg/kg	0.1	0.14	-	NT	0.037	NT	0.013	NT	0.0081 U	NT	0.082	NT	0.059
Indeno(1,2,3-cd)pyrene*	mg/kg	-	1.4	-	NT	0.024	NT	0.014	NT	0.0081 U	NT	0.054	NT	0.032
Dibenzo(a,h)anthracene*	mg/kg	-	0.14	-	NT	0.0091	NT	0.0080 U	NT	0.0081 U	NT	0.021	NT	0.012
Total cPAHs as Benzo(a)pyrene ³			0.44											
	mg/kg	0.1	0.14	-	NT	0.0882	NT	0.0189	NT	0.0061 U	NT	0.110	NT	0.077
TOTAL METALS ²														
Arsenic	mg/kg	20	0.67	24	NT	13 U	NT	12 U	NT	15	NT	11 U	NT	12 U
Cadmium	mg/kg	2	-	-	NT	0.65 U	NT	0.60 U	NT	2.0	NT	0.57 U	NT	0.60 U
Chromium	mg/kg	2000	-	-	NT	13	NT	14	NT	54	NT	16	NT	16
Copper	mg/kg	-	-	3,200	NT	26	NT	26	NT	720	NT	25	NT	41
Lead	mg/kg	250	-	-	NT	41	NT	38	NT	940	NT	52	NT	240
Manganese	mg/kg	-	-	11,000	NT	210	NT	480	NT	910	NT	530	NT	390
Notes:												-		

² Only analytes with a minimum of one detection are listed.

³ Total of individal cPAHs (indicated by *), benzo(a)pyrene toxcity equivalency factor; half the practical quantitation limit was used for non-detect values.

⁴ If benzene present - 30 mg/kg, if no benzene present - 100 mg/kg.

⁵ Protection of soil injestion/protection of groundwater
 ⁶ TCE and PCE concentrations in groundwater were originally screened to **bolded** levels. Changes to cleanup levels occurred following initial screening as described in Section 6.1. New cleanup levels are shown here and in Table 13.

7 Screening level exceedances shown in this table reflect new screening levels established by Ecology in June 2012.

cPAHs Carcinogenic Polycyclic Aromatic Hydrocarbons.

U Analyte not detected above given practical quantitation limit. J Sample analyzed past the recommended hold time, value is an estimate.

UJ Analyte not detected above given practical quantitation limit. Sample analyzed past the recommended hold time, value is an estimate.

°C Degrees celcius.

mg/l Milligrams per liter.

µS/m Microsiemens per meter.

mV Millivolts.

- No cleanup level established for this parameter

-- = Result not detected. Reporting limit or method detection limit not listed in historic data.

NTU Nephelometric tubidity unit.

S.U. Standard units.

µg/l micrograms per liter.

UN Depth of sample collection unknown.

NT Parameter was not tested.

UC Source is unclear whether this parameter was analyzed.

^ Orginal sample was non-detect. Result presented is the duplicate result.

Table 7. Surface Water Analytical Data

							Surfac	e Station ID	S-1		S-2	2	S-3	S-1, S-2, S-3^	
					WA Surface (Fresh) Water Quality Standards* for Aquatic r Life		Date Sampled		Feb-98	Jul-98	Feb-98	Jul-98	Feb-98	Jul-98	1995
		MTCA B Carcinogen	MTCA B Non- carcinogen	WA Surface (Fresh) Water Quality Standards** for			Clean Water Act Surface (Fresh) Water Standards** for Aquatic Life								
ANALYTE	Units	Level	Level	Human Health	Acute	Chronic	Acute	Chronic							
DISSOLVED METALS ²															
Arsenic	µg/l	0.098	18	0.018	360	190	340	150	0.0023	NA	0.0013	NA	0.0046	NA	NP
Antimony	µg/l	-	1,300	5.6	-	-	-	-	0.001 U	NA	0.001	NA	0.001 U	NA	NP
Cadmium	µg/l	-	41	-	0.82	0.37	2	0.25	0.0015	NA	0.001 U	NA	0.001 U	NA	NP
Chromium	µg/l	-	-	-	-	-	-	-	0.001	NA	0.0011	NA	0.0022	NA	NP
Copper	µg/l	-	2,900	-	4.6	3.5	13	9	0.0052	NA	0.0023	NA	0.0034	NA	NP
Iron	µg/l	-	-	300	-	-	-	100	1.25	NA	0.474	NA	1.71	NA	NP
Lead	µg/l	-	-	-	14	0.54	65	2.5	0.0016	NA	0.001 U	NA	0.0015	NA	NP
Manganese	µg/l	-	-	50	-	-	-	-	0.257	NA	0.278	NA	0.735	NA	NP
Nickel	µg/l	-	1,100	610	440	49	470	52	0.0056	NA	0.0038	NA	0.0095	NA	NP
Zinc	µg/l	-	-	7,400	35	32	120	120	0.0141	NA	0.0062	NA	0.009	NA	NP
VOLATILE ORGANIC COMPOUNDS															
Chloroform	µg/l	-	6,900	5.7	-	-	-	-		NA	1.86	NA		NA	NP
Trichloroethene (TCE)	µg/l	6.7	71	2.5	-	-	-	-		NA		NA		NA	NP
Toluene	µg/l		-	1,300	-	-	-	-	2.36	NA	5.31	NA	23.0	NA	2.2
Tetrachloroethene (PCE)	µg/l	2.4	0.49	0.69	-	-	-	-		NA		NA		NA	NP
CONVENTIONALS						-		-							
Total Dissolved Solids	mg/l	-	-	-	-	-	-	-	300	NA	358	NA	903	NA	NP
Total Organic Carbon	mg/l	-	-	-	-	-		-	164	NA	79.2	NA	224	NA	NP
Ammonia	mg/l	-	-	-	-	-	-	-	10.1	NA	8.7	NA	26.4	NA	NP
Nitrate	mg/l	-	-	1	-	-	-	-	0.115	NA	0.1 U	NA	0.1 U	NA	NP
Nitrite	mg/l	-	-	-	-	-	-	-	7.62	NA	7.2	NA	5.24	NA	NP
Total Alkalinity	mg/l	-	-	-	-	-	-	-	184	NA	174	NA	438	NA	NP
Chloride	mg/l	-	-	-	860	230	860	230	23.9	NA	20.9	NA	62.1	NA	NP
Bicarbonate Alkalinity	mg/l	-	-	-	-	-	-	-	184	NA	174	NA	438	NA	NP

Notes:

- No cleanup level established for this parameter

__ Result below detection limit.

NA Not analyzed.

NP Not presented.

U Result below given practical quanititation limit.

* WAC 173-201A-240, Table 240(3).

** Clean Water Act 304

^ Maximum concentration for these locations is presented only. Location specific result was not presented in data table.

Table 8. Soil Gas Analytical Data																						
AOC	Landfill															Dry Cleaners						
Sample Location	GP3				GP13				GP13						P-4		I-P2					
Sample Depth (ft bgs)	32-34			15-16				32-34				16					14					
Date Sampled	5/1/1999			5/1/1999				5/1/1999				5/28/2010					5/28/2010					
Analyte ¹	Units		Units		Units		Units		Units		Units		Units		Units			Units		Units		
Vethane	NA		NA		NA		NA		NA		NA		ppm 14,268		mg/m ³ 9,640		ppm	5.34	mg/m ³	3.61		
Methane	NA		NA		NA		NA		NA		NA		% by Volume	1.43%				% by Volume	0.00%			
Dichlorofluoromethane	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	3.1	ug/m ³	15.81		ppbv	ND	ug/m ³	ND	
Chloromethane	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	14.99	ug/m ³	31.96		ppbv	0.93	ug/m ³	1.99	J
1,1-Dichloroethene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	1.31	ug/m ³	5.38	J	ppbv	ND	ug/m ³	ND	
1,1-Dichloroethane	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	2.61	ug/m ³	4.71	J	ppbv	ND	ug/m ³	ND	
1,1,1-Trichloroethane	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	1.41	ug/m ³	7.93	J	ppbv	ND	ug/m ³	ND	
rans-1,3-Dichloropropene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m³	ND		ppbv	1.51	ug/m ³	7.1	J
Benzene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	33.68	ug/m ³	111.09		ppbv	8.66	ug/m ³	28.56	
Toluene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	27.78	ug/m ³	108.05		ppbv	50.38	ug/m ³	195.96	
Ethylbenzene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	4.17	ug/m ³	18.72	J	ppbv	2.54	ug/m ³	11.37	
n,p-Xylenes	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	8.81	ug/m ³	39.52	J	ppbv	7.09	ug/m ³	31.78	
o-Xylene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	24.31	J	ppbv	2.89	ug/m ³	12.98	
Carbon Tetrachloride	ppbv	ND	ug/m ³	ND	ppbv	ND	uq/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND		ppbv	0.61	ug/m ³	3.97	J
4-Ethyltoluene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	3.63	ug/m ³	18.42		ppbv	1.79	ug/m ³	9.1	
1,3,5-Trimethylbenzene	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	2.36	ug/m ³	11.97	J	ppbv	1.15	ug/m ³	5.83	J
1,2,4-Trimethylbenzene	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	3.18	ua/m ³	16.09	J	ppbv	1.62	ua/m ³	8.21	J
Acetone	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	355	ug/m ³	871		ppbv	671	ug/m ³	1645	
2-Butanone	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	ND	ug/m ³	ND	ppbv	53	ug/m ³	161		ppbv	64	ug/m ³	194	J
Cyclohexane	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	6	ua/m ³	22	J	ppbv	ND	ua/m ³	ND	
- Hexane	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	22	ua/m ³	79		ppbv	ND	ua/m ³	ND	
n-Heptane	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	ppbv	ND	ua/m ³	ND	vdqq	20	ua/m ³	85		ppbv	ND	ua/m ³	ND	
Tetrachloroethene	ppbv	ND	ua/m ³	ND	ppbv	1,200	ua/m ³	8,404	ppbv	590	ua/m ³	4,132	ppbv	ND	ua/m ³	ND		ppbv	ND	ua/m ³	ND	
Methylene chloride	ppbv	370	ua/m ³	1,327	vdqq	ND	ua/m ³	ND	vdqq	ND	ua/m ³	ND	vdqq	ND	ua/m ³	ND		vdqq	ND	ua/m ³	ND	
/inyl chloride	ppbv	1,600	ug/m^3	4,223	ppbv	ND	ua/m^3	ND	ppbv	ND	ug/m^3	ND	vdqq	ND	ua/m ³	ND		vdqq	ND	ua/m ³	ND	
-			- <u>3</u> ,				- 3,				- <u>-</u> ,				- .					- .		

Notes:

¹ Detections reported only.

ppm = parts per million

ppbv = parts per billion by volume

ug/m³ = micrograms per cubic meter = ppbv*FW/23.68 calculated assuming conditions at 60 F and 1 atm.

mg/m³ = miilligrams per cubic meter

ft bgs =feet below ground surface.

ND = not detected

NA = not analyzed

J = flag for a result between the MDL and the RL (or lower quantitation limit, LQL)
	We	ell ID	MW-1			MW-2			MW-3				MW-5					
	Da	ate Sampled	7/12/10	10/25/10	2/7/11	6/20/11	7/12/10	10/25/10	2/7/11	6/20/11	7/13/10	10/25/10	2/7/11	6/20/11	7/16/10	10/27/10	2/9/11	6/22/11
		Cleanup																
	Units	Level ¹																
VOLATILE ORGANIC COMPOUNDS ²																		
Vinyl Chloride	µg/l	0.2	0.20 U	0.20 U	0.20	U 0.20 L	J 0.20 U	0.20 U	0.20 U	0.20 U	0.20	U 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Chloroform	µg/l	-	0.25	0.20	0.20	U 0.24	0.72	0.8	0.78	0.89	0.89	0.94	0.83	0.89	0.20	0.20 U	0.20 U	0.20 U
Trichloroethene (TCE)	µg/l	4 ³	0.49	0.35	0.32	0.35	2.4	2.0	2.0	2.3	2.1	1.9	1.7	1.6	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	µg/l	1000	1.0 U	1.0 U	1.0	U 1.0 L	J 1.0 U	1.0 U	1.0 U	1.0 U	1.0	U 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene (PCE)	µg/l	0.81	0.20 U	0.20 U	0.20	U 0.20 L	J 0.20 U	0.20 U	0.20 U	0.20 U	0.20	U 0.20 U	0.20 U	0.20 U	5.3	1.8	1.5	0.79
sec-Butylbenzene	µg/l	-	0.20 U	0.20 U	0.20	U 0.20 L	J 0.20 U	0.20 U	0.20 U	0.20 U	0.20	U 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Naphthalene	μg/l	160	1.0 U	1.0 U	1.0	U 1.0 L	J 1.0 U	1.0 U	1.0 U	1.0 U	1.0	U 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

	W	ell ID		MV	V-7			MM	/-8			MW	-9			MW	-10	
ΔΝΔΙ ΥΤΕ	Da	ate Sampled	7/29/10	10/26/10	2/8/11	6/21/11	7/29/10	10/28/10	2/8/11	6/21/11	7/13/10	10/25/10	2/8/11	6/20/11	7/14/10	10/27/10	2/9/11	6/22/11
		Cleanup																
	Units	Level ¹																
VOLATILE ORGANIC COMPOUNDS ²																		
Vinyl Chloride	µg/l	0.2	0.20 U	0.20 U	0.20 U	J 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20	U 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Chloroform	µg/l	-	2.2	1.9	2.4	2.6	1.6	1.3	1.5	1.7	0.59	0.78	0.63	0.79	1.4	1.5	1.0	1.0
Trichloroethene (TCE)	µg/l	4 ³	0.20 U	0.20 U	0.20 U	J 0.20 U	3.3	1.4	2.5	2.3	1.3	1.3	1.1	1.3	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	µg/l	1000	1.0 U	1.0 U	1.0 U	J 1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0	U 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene (PCE)	µg/l	5 ³	0.20 U	0.20 U	0.20 U	J 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.72	0.42	0.76	0.58	0.22	0.21	0.25	0.20 U
sec-Butylbenzene	µg/l	-	0.20 U	0.20 U	0.20 U	J 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20	U 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Naphthalene	μg/l	160	1.0 U	1.0 U	1.0 U	J 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	U 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

	W	/ell ID		MM	/-12			MM	-13			MW	-14			SL	F-7	
	D	ate Sampled	7/14/10	10/27/10	2/9/11	6/22/11	7/13/10	10/28/10	2/7/11	6/21/11	7/13/10	10/25/10	2/7/11	6/20/11	7/15/10	11/4/10	2/10/11	6/23/11
ANALTTE		Cleanup																
	Units	Level ¹																
VOLATILE ORGANIC COMPOUNDS ²																		
Vinyl Chloride	µg/l	0.2	0.20 U	0.20 U	0.20 l	J 0.20 L	0.20 L	J 0.20 U	0.20 U	0.20 U	0.20	U 0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Chloroform	µg/l	-	0.67	0.78	0.60	0.27	0.96	1.1	1.4	1.6	0.74	0.80	0.78	0.84	0.20 U	0.20 U	0.20 U	0.20 U
Trichloroethene (TCE)	µg/l	4 3	1.7	1.5	0.74	0.43	0.20 L	J 0.20 U	0.20 U	0.20 U	0.87	0.99	1.0	0.73	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	µg/l	1000	1.0 U	1.0 U	1.0 l	J 2.1	1.0 L	J 1.0 U	1.0 U	1.0 U	1.0	U 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene (PCE)	µg/l	5 ³	0.39	0.24	0.75	0.43	0.21	0.21 U	0.30	0.25	0.94	0.72	0.86	0.93	0.20 U	0.20 U	0.20 U	0.20 U
sec-Butylbenzene	µg/l	-	0.20 U	0.20 U	0.20 l	J 0.20 L	0.20 L	J 0.20 U	0.20 U	0.20 U	0.20	ປ 0.20 ປ່	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Naphthalene	µg/l	160	0.20 U	1.0 U	1.0 l	J 1.0 L	l 1.0 L	J 1.0 U	1.0 U	1.0 U	1.0	U 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

- No comparative MTCA A value established.

-- No analysis was completed for this parameter.

* cPAHs used to calculate Total cPAHs as Benzo(a)pyrene.

¹ MTCA Method A Groundwater Cleanup Level.

² Only analytes with a minimum of one detection are listed.

³ Cleanup level based on "Summary of Revised Groundwater and Air Cleanup Levels" - June 2012 (Perchloroethylene and Trichloroethylene); provided by Washington State Department of Ecology.

cPAHs Carginogenic Polycyclic Aromatic Hydrocarbons.

U = Analyte not detected above given practical quantitation limit.

J = Sample analyzed past the recommended hold time, value is an estimate.

UJ = Analyte not detected above given practical quantitation limit. Sample analyzed past the recommended hold time, value is an estimate.

mg/l = Milligrams per liter.

µg/l = micrograms per liter.

Exceeds MTCA Method A Groundwater Cleanup Level

	We	ell ID	MW-6								
ANAI YTE	Da	te Sampled	7/16/10	10/26/10	2/8/11		6/21/11				
		Cleanup									
	Units	Level ¹									
VOLATILE ORGANIC COMPOUNDS ²											
Vinyl Chloride	µg/l	0.2	0.20	U 0.20 U	0.20	U	0.20 U				
Chloroform	µg/l	-	0.20	U 0.20 U	0.20	U	0.20 U				
Trichloroethene (TCE)	µg/l	4 ³	0.20	U 0.20 U	0.20	U	0.20 U				
Toluene	µg/l	1000	1.0	U 1.0 U	1.0	U	1.0 U				
Tetrachloroethene (PCE)	µg/l	0.81	0.20	U 0.20 U	0.20	U	0.20 U				
sec-Butylbenzene	µg/l	-	0.89	0.43	0.20		0.20 U				
Naphthalene	µg/l	160	0.23	1.0 U	1.0	U	1.0 U				

	We	ell ID	MW-11								
	Da	te Sampled	7/14/10	10/27	/10	2/9/11		6/22/11			
ANALTIE		Cleanup									
	Units	Level ¹									
VOLATILE ORGANIC COMPOUNDS ²											
Vinyl Chloride	µg/l	0.2	0.20	U C	.20 U	0.20	U	0.20 U			
Chloroform	µg/l	-	0.81	C	.89	1.1		0.95			
Trichloroethene (TCE)	µg/l	4 ³	0.62	C	.52	0.59		0.59			
Toluene	µg/l	1000	1.0	U	1.0 U	1.0	U	1.0 U			
Tetrachloroethene (PCE)	µg/l	5 ³	1.5		1.2	0.92		0.46			
sec-Butylbenzene	µg/l	-	0.20	UC	.20 U	0.20	U	0.20 U			
Naphthalene	µg/l	160	1.0	U	1.0 U	1.0	U	1.0 U			

	W	/ell ID			SLI	-9			SLF-10					
		ate Sampled	7/15/10	11/4	4/10	2/10/11		6/23/11	7/15/10	11/4/10	2/10/11		6/23/11	
ANALITE		Cleanup												
	Units	Level ¹												
VOLATILE ORGANIC COMPOUNDS ²														
Vinyl Chloride	µg/l	0.2	0.20	U	0.20 U	0.20	U	0.20 U	0.20 U	0.20 U	0.20	U	0.20	U
Chloroform	µg/l	-	0.78		0.63	0.72		0.72	1.4	1.1	1.5		1.2	
Trichloroethene (TCE)	µg/l	4 ³	1.2		1.1	1.2		1.3	0.20 U	0.20 U	0.20	U	0.20	U
Toluene	µg/l	1000	1.0	U	1.0 U	1.0	U	1.0 U	1.0 U	1.0 U	1.0	U	1.0	U
Tetrachloroethene (PCE)	µg/l	5 ³	0.52		0.53	0.49		0.43	0.43	0.39	0.49		0.41	
sec-Butylbenzene	µg/l	-	0.20	U	0.20 U	0.20	U	0.20 U	0.20 U	0.20 U	0.20	U	0.20	U
Naphthalene	µg/l	160	1.0	U	1.0 U	1.0	U	1.0 U	1.0 U	1.0 U	1.0	U	1.0	U

- No comparative MTCA A value established.
- -- No analysis was completed for this parameter.
- * cPAHs used to calculate Total cPAHs as Benzo(a)pyrene.
- ¹ MTCA Method A Groundwater Cleanup Level.
- ² Only analytes with a minimum of one detection are listed.
- ³ Cleanup level based on "Summary of Revised Groundwater and Air Cleanup Levels" - June 2012 (Perchloroethylene and Trichloroethylene); provided by Washington State Department of Ecology.
- cPAHs
- Carginogenic Polycyclic Aromatic Hydrocarbons.
- U = Analyte not detected above given practical quantitation limit.
- J = Sample analyzed past the recommended hold time, value is an estimate.
- UJ = Analyte not detected above given practical quantitation limit. Sample analyzed past the recommended hold time, value is an estimate.
- mg/l = Milligrams per liter.
- µg/l = micrograms per liter.
 - Exceeds MTCA Method A Groundwater Cleanup Level

Constituent	95% UCL Calculations											
Constituent					F	All Groundwater	Dala			Screening		
	N Detects Min Max Mean Distribution 95% UCL RME Basis									Level ¹		
	#	#	(µg/l)	(µg/l)	(µg/l)		(µg/l)	(µg/l)		(µg/l)		
Vinyl Chloride	64	0	0.2 U	0.2 U		N/A		0.1	1/2 Det. Limit	0.35		
Chloroform	64	52	0.2 U	2.6	0.84	normal	0.968	0.968	95% UCL	1.2		
Trichloroethene (TCE)	64	37	0.2 U	3.3	0.78	non-parametric	1.34	1.34	95% UCL	0.42		
Toluene	64	1	1.0 U	2.1		N/A		2.1	Max (>50% NDs)	15000		
Tetrachloroethene (PCE)	64	34	0.2 U	5.3	0.46	non-parametric	0.61	0.61	95% UCL	1		
sec-Butylbenzene	64	4	0.2 U	0.89		N/A		0.89	Max (>50% NDs)	N/A		
Naphthalene	64	2	0.2 U	0.23		N/A		0.23	Max (>50% NDs)	170		

Table 10. Statistical Analysis of Groundwater Data at the Washington State Penitentiary Site

¹ Groundwater screening levels were obtained from the Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action (Ecology 2009). The groundwater screening level is the concentration in the groundwater expected to not result in exceedance of the air cleanup level in an overlying structure under most circumstances. GW SL = [Indoor Air Cleanup Level]/[Hcc* γ *1000], where γ = 1.0E-3.

N = Number of samples collected.

Min = minimum concentration detected.

Max = maximum concentration detected.

UCL = upper confidence limit.

RME = reasonable maximum exposure.

ND = non-detect.

N/A = not available.

U = not detected above the method detection limit.

µg/l = micrograms per liter

Max or RME
Exceeds
Screening
Level?
No
Yes
Yes
No
Yes
No

		• • •														
		Johnson Groun Screenir	& Ettinger dwater		Joł	nnson & Ettinger Grou	undwater Advanced M	lodel	Joh	nson & Ettinger Grou	ndwater Advanced Mo	del				
	MTCA Method B Indoor	Resid	Residential Exposure Exceeds MTC4			Residentia	al Exposure		Occupational Exposure							
Constituent	Air Cleanup Level	Predicted Concer	Predicted Indoor Air Concentration Exceeds MTCA Method B?		Predicted Indoor	Air Concentration	Predicted Indoor	r Air Concentration	Predicted Indoor	Air Concentration	Predicted Indoor Air Concentration					
		Using Max GW Conc.	Using GW RME		Using Max. GW Conc. & Small Building (9 500 ft ²)	Using Max. GW Conc. & Large Building (18 500 ft ²)	Using GW RME & Small Building (9,500 ft ²)	Using GW RME & Large Building (18,500 ft ²)	Using Max. GW Conc. & Small Building (7 200 ft ²)	Using GW RME & Small Building (7,200	Using Max. GW Conc. & Large Building (97 160 ft ²)	Using GW RME & Large Building (97 160 ft ²)				
	µg/m ³	µg/m ³	µg/m ³		$\mu g/m^3$	$\mu g/m^3$	μg/m ³	μg/m ³	μg/m ³	μg/m ³	$\mu g/m^3$	μg/m ³				
Vinyl Chloride	0.28	0.042	0.021	No	-	-	-	-	-	-	-	-				
Chloroform	0.11	0.058	0.022	No	-	-	-	-	-	-	-	-				
Trichloroethene (TCE)	0.1	0.14	0.059	Yes	0.1	0.043	0.077	0.03	0.092	0.037	0.024	0.0096				
Toluene	2300	0.062	0.062	No	-	-	-	-	-	-	-	-				
Tetrachloroethene (PCE)	0.4	0.35	0.04	No	-	-	-	-	-	-	-	-				
sec-Butylbenzene	N/A	8.3E-06	8.3E-06	No	-	-	-	-	-	-	-	-				
Naphthalene	1.4	0.00025	0.00025	No	-	-	-	-	-	-	-	-				

MTCA = Model Toxics Control Act

 μ g/m³ = micrograms per cubic meter

ft² = square feet

Conc. = concentration

			Default
Parameter	Units	Site-Specific Value	(USEPA 2004)
Groundwater Concentration	µg/L	Chemical specific	
Groundwater temperature	C°		10
Depth below grade (basement)	cm	Used for residential	200
Depth below grade (slab on grade)	cm	Used for occupational	15
Soil type (Stratum A)		Silt (0 to 40 feet bgs)	
Soil type (Stratum B)		Sand (40 to > 75 feet bgs)	
Soil dry bulk density (Stratum A)	g/cm ³		1.35
Soil total porosity (Stratum A)	unitless		0.489
Soil water-filled porosity (Stratum A)	cm ³ /cm ³		0.167
Soil dry bulk density (Stratum B)	g/cm ³		1.66
Soil total porosity (Stratum B)	unitless		0.375
Soil water-filled porosity (Stratum B)	cm ³ /cm ³		0.054
Depth below grade to water table	ft (cm)	75 (2286)	
Floor thickness	cm		10
Building pressure differential	g/cm-s ²		40
Seam crack width	cm		0.1
Indoor air exchange rate	1/hour		0.25
Averaging time for carcinogens (res.)	years		70
Averaging time for non-carcinogens (res.)	years		30
Exposure duration (res.)	years		30
Exposure frequency (res.)	days		350
Averaging time for carcinogens (occ.)	years		70
Averaging time for non-carcinogens (occ.)	years		30
Exposure duration (occ.)	years		20
Exposure frequency (occ.)	days		219
Building L/W/H			
Small Res. Building (D-80; 9,500 ft ² on 1 floor)	ft (cm)	95 (2985) x 100 (3048) x 10 (305)	
Large Res. Building (D-70; 18,500 ft ² on 1 floor)	ft (cm)	100 (3048) x 185 (5639) x 10 (305)	
Small Occ. Building (F-20; 7,200 ft ²)	ft (cm)	72 (2194) x 100 (3048) x 10 (305)	
Large Occ. Building (C-30; 97,160 ft ²)	ft (cm)	311 (9,500) x 311 (9,500) x 10 (305)	

Table 12. Johnson & Ettinger Screening and Advanced Groundwater Model Input Parameters

µg/L	micrograms per liter
C°	degress Celsius
cm	centimeters
g/cm ³	grams per cubic centimeters
cm ³ /cm ³	cubic centimeter per cubic centimeter
g/cm-s ²	grams per centimeter seconds squared
ft ²	square feet
res.	residential
OCC.	occupational

bgs below ground surface

	Table 13.	. Preliminary	y Cleanup	Levels
--	-----------	---------------	-----------	--------

Soil											
	CAS #	Units	Method	d B Soil							
Benzo(a)pyrene	50-32-8	mg/kg	0.	14							
Gasoline Range Organics [#]		mg/kg	1	00							
Lead	7439-92-1	mg/kg	2	50]						
Tetrachloroethene (PCE)	127-18-4	mg/kg	47	6.2							
Groundwater											
			MTCA B G	MTCA B Groundwater		undwater AR	ARs	Downw	vard-adjusted	ARARs	
Chemical	CAS #	Units	Non-Cancer SFV	Cancer SFV	Federal Primary MCL	Federal MCL Goal	State Primary MCL	Adjusted Minimum MCL	Hazard Quotient	Excess Cancer Risk	Preliminary Cleanup Level
Benzo(a)pyrene	50-32-8	µg/L	NR	0.012	0.2	0	0.2	0.12		1.00E-05	0.12
Manganese, dissolved	7439-96-5	µg/L	2,200	NR	NR	NR	NR	NR	No MCL	available.	2,200
Tetrachloroethene (PCE)	127-18-4	µg/L	48	20.833	5	0	5	5	0.1000	2.40E-07	5
Trichloroethene (TCE)	79-01-6	µg/L	4	0.95	5	0	5	4	1.0000	4.20E-06	4

¹ MTCA Method B values are from "Summary of Revised Groundwater and Air Cleanup Levels" - June 2012 (Perchloroethylene and Trichloroethylene), provided by Department of Ecology.

ARAR = Applicable or Relevant and Appropriate Requirement.

Downward-adjusted ARARs (WAC 173-340-705 (2)):

Hazard Quotient = Hazard quotient for Adjusted Minimum MCL based on applicable MTCA B Groundwater non-cancer SFV. If HQ > 1 for the MCL, then the MCL was adjusted

Excess Cancer RIsk = Cancer risk for Adjusted Minimum MCL based on applicable MTCA B Groundwater cancer SFV. If greater than 1x10⁵ for the MCL, then MCL was

MCL downward-adjusted so that Hazard Quotient≤ 1 and Excess Cancer Risk ≤ 1x10⁻⁵.

Standard = Downward-adjusted ARAR or, if no ARARs, minimum of MTCA B groundwater cancer and non-cancer SFVs.

MCL = Maximum Contaminant Level.

N/A = Not available (COC not included in CLARC Database).

N/S = No standard (no SFVs or MCLs available for COC to calculate Standard).

NR = Not Researched (CLARC Database).

RND = Researched - No Data (CLARC Database).

SFV = Standard Formula Value (CLARC Database).

= soil contains no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture.

Medium	Cleanup Action Category	Cleanup Technology1	Process Options	Technical Feasibility/ Effectiveness	Implementability	Cost	Retained/Rejected2
Soil	Land Use Controls	Land Use/ Institutional Controls	Not Applicable	This control is effective because it restricts the use/access to soil. It does not directly address contamination removal or treatment.	This is an acceptable method for preventing human contact with hazardous media. It can be difficult to implement due to potential public resistance, and the necessary cooperation of multiple agencies and local governments.	Low	Retained
	In Situ Biological Treatment	Natural Attenuation	Monitored Natural Attenuation—Natural subsurface processes such as dilution, volatilization, biodegradation, and other physical and/or chemical processes are allowed to reduce contaminant concentrations.	This is an effective method to reduce VOC and inorganics contamination; however, it requires evaluation of contaminant degradation rates to determine if it is appropriate for a site.	This is an accepted technology that has been implemented at numerous sites. It is easy to implement because little to no action is required. A long-term groundwater monitoring system would be required to verify the effectiveness of this technology. Institutional controls may be required, and the site may not be available for re-use until contaminant levels are reduced. This approach has low O&M requirements.	Low	Retained
		Enhanced Biodegradation	Indigenous or inoculated micro-organisms (e.g., fungi, bacteria, and other microbes) degrade (metabolize) organic contaminants found in soil and/or ground water, converting them to innocuous end products. Nutrients, oxygen, or other amendments may be used to enhance bioremediation and contaminant desorption from subsurface materials.	This is an effective method to reduce VOC contamination; however, it requires evaluation of contaminant degradation rates to determine if it is appropriate for a site. Experimental results for inorganics available; however, full-scale examples are limited. Due to the existence of commingled chlorinated and un- chlorinated VOCs, nutrient characteristics are typically mutually exclusive.	This is an accepted technology that has been implemented at numerous sites. A long-term groundwater monitoring system would be required to verify the effectiveness of this technology. Institutional controls may be required, and the site may not be available for re-use until contaminant levels are reduced. Depths of contaminants at the site are limiting for the technology and microorganism contact with nutrients is difficult to obtain. This approach has medium O&M requirements due to repeated dosings of nutrients.	Medium	Rejected due to feasibility and implementability issues.
		Bioventing	Bioventing wells – Shallow wells are installed in soil to provide oxygen to existing soil microorganisms. Bioventing uses low air flow rates to provide only enough oxygen to sustain microbial activity. Oxygen is most commonly supplied through direct air injection into residual contamination in soil.	This is an effective method to reduce VOC contamination; however, it requires evaluation of contaminant degradation rates to determine if it is appropriate for a site. Experimental results for inorganics available; however, full-scale examples are limited. Due to the existence of commingled chlorinated and un- chlorinated VOCs, chlorinated VOC remediation in aerobic environments is largely ineffectual.	This is an accepted technology that has been implemented at numerous sites. A long-term groundwater monitoring system would be required to verify the effectiveness of this technology. Site may not be available for re-use until contaminant levels are reduced. Microorganisms typically require supplemental nutrients in order to degrade VOCs to cleanup levels. This approach has medium O&M requirements due to repeated dosings of nutrients and the long term nature of implementation.	Medium	Rejected due to feasibility and implementability issues.
		Phytoremediation	Phytoremediation Process that uses plants to remove, transfer, stabilize, and destroy contaminants in soil and sediment. The mechanisms of phytoremediation include enhanced rhizosphere biodegradation, phyto- extraction (also called phyto- accumulation), phyto- degradation, and phyto- stabilization.	This is an effective method to reduce inorganic contamination in shallow surface soil. Contaminants are either bioaccumulated in biomass or converted to less toxic byproducts via various biological activities. Remediation of VOCs is experimental and not well documented. Plants require large volumes of water for survival and are typically dormant during colder times of the year.	This is an accepted technology that has been implemented at numerous sites. Biomass requires harvesting and disposal in accordance with solid waste regulations.	Low	Rejected due to feasibility and implementability issues.

Table 14. Screening of Technologies and Process Options

Final

Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Final Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

Table 14. Screening of Technologies and Process Options

Medium	Cleanup Action Category	Cleanup Technology1	Process Options	Technical Feasibility/ Effectiveness	Implementability	Cost	Retained/Rejected2
	In Situ Physical/	Chemical Oxidation	Physical/chemical treatment	Each of these technologies could be	Each of these technologies have limited	High. The cost to	In Situ Physical/ Chemical
	Chemical Treatment	Electrokinetic Separation	Uses the physical properties of the contaminants or the contaminated medium to	feasible and effective at specific areas of the facility (i.e., WSP Landfill, Former	implementability for the specific contaminants, lithology, and access restrictions associated with	implement any of these technologies	Treatment technologies rejected due to feasibility and implementability issues and cost.
		Fracturing	destroy (i.e., chemically	however, none of the technologies are	type of soils where contamination occurs (e.g., silts),	independent of the	
		Soil Flushing	convert), separate, or contain	applicable to all areas where soil	nature of the contaminants above cleanup levels,	other contaminated	
		Soil Vapor Extraction	residuals from separation	levels.	situ physical/ chemical treatment technologies are	extremely high in	
		Solidification/ Stabilization	techniques will require treatment or disposal, which		not readily implementable at the site.	relation to the removal of the limited target	
		Thermal Treatment	 will add to the total project costs and may require permits. Extraction fluids from soil flushing will increase the mobility of the contaminants, so provisions must be made for subsurface recovery. 			contaminants and concentrations.	
	Ex Situ Treatment	Biopiles	Ex Situ Treatment Uses	Each of these technologies could be	Each of these technologies have limited	High. The cost to	Ex Situ Treatment technologies
		Composting	biological, physical/ chemical, or thermal processes to lower contaminant concentrations or potential exposures. Bioremediation techniques are destruction or transformation techniques directed toward stimulating the microorganisms to grow and use the contaminants as a food and energy source by creating a favorable environment for the microorganisms. Generally, this means providing some combination of oxygen, nutrients, and moisture, and controlling the temperature and pH.	feasible and effective at areas of the facility outside the WSP Landfill (i.e., Former Motor Pool, Former Dry Cleaner); however, none of the technologies are applicable to all areas where soil contamination levels are above cleanup levels. The low levels of contaminants within the soil and the disperse nature of the contamination would lead to	implementability for the specific contaminants, lithology, and access restrictions associated with working at the WSP. Due to the range of depths, type of soils where contamination occurs (e.g., silts), nature of the contaminants above cleanup levels, and relative disperse nature of the contamination, ex situ treatment technologies are not readily implementable at the site.	implement any of these technologies over a limited area and independent of the other contaminated soil areas would be extremely high in relation to the removal of the limited target	rejected due to feasibility and implementability issues and cost.
		Landfarming					
		Slurry Phase Biological Treatment					
		Chemical Extraction					
		Chemical Reduction/Oxidation					
		Dehalogenation		excavated material requiring large		concentrations. The	
		Separation		volumes of nutrients to degrade the		low levels of contaminants within the soil and the disperse nature of the contamination would lead to substantial dilution and large volumes of excavated material requiring large	
		Soil Washing		Also, assuming some contamination			
		Solidification/ Stabilization		exists in areas inaccessible by excavation methods (e.g., beneath structures),			
		Hot Gas Decontamination		left in place and either in situ or containment technologies would be			
		Incineration	uses the physical properties of	necessary.			
		Pyrolysis	the contaminants or the			volumes of nutrients to degrade the relatively	
		Thermal Desorption	contaminated medium to destroy (i.e., chemically convert), separate, or immobilize the contamination.			small amount of contamination.	
			Thermal processes use heat to increase the volatility (separation); burn, decompose, or detonate (destruction); or melt (immobilization) the contaminants.				

Medium	Cleanup Action Category	Cleanup Technology1	Process Options	Technical Feasibility/ Effectiveness	Implementability	Cost	Retained/Rejected2
	Containment	Low Permeability Cap	Low Permeability Cap – Uses low permeability material (e.g., bentonite amended soil, geomembrane, asphalt) on the surface above contamination to minimize the surface infiltration of precipitation and exposure to the contaminants.	This is an effective technology for minimizing vertical contaminant migration. Cap materials vary in permeability. It provides containment only, it does no treat groundwater or provide source removal.	This is a common, well-established, and accepted technology.	Medium	Retained
	Soil Caps	Covering with permeable to low permeable soil to establish barrier between receptor populations and waste. Creating positive drainage to reduce ponding and infiltration. Planting native vegetation to enhance evapotranspitration. Use of low permeability soil further enhances effectiveness.	Technically feasible. Effectiveness varies depending on thickness of soil, slope, and climatic conditions. Does not remove source material and does not treat groundwater.	Commonly used approach for abandoned landfills. Regulatory standard in Washington for landfills that stopped receiving waste prior to October 1992	Low to medium depending on soil permeability, thickness and areal coverage.	Retained	
		Excavation and Offsite Disposal	Soil contamination above cleanup levels would be excavated and shipped offsite for disposal at a permitted landfill.	Based on the known limits of refuse and assuming a refuse layer thickness between 6 and 12 feet, the WSP Landfill is estimated to contain 40,000 to 80,000 cubic yards of refuse. Soil contamination in other areas of the facility occurs at depths as deep as 12 feet with an unknown areal extent.	This is a common, well-established, and acceptable technology.	Very High. The cost is disproportionate to the potential benefits, especially for the WSP Landfill. The waste within the WSP Landfill does not appear to generate large amounts of leachate or landfill gas.	Rejected due to feasibility and implementability issues and cost. However, specific areas could be excavated and disposed offsite in conjunction with future construction.

Table 14. Screening of Technologies and Process Options

1 Cleanup technologies, descriptions, and applicability to the Site were primarily based on information from the Federal Remediation Technologies Roundtable website at www.frtr.gov, the CPEO website at http://www.cpeo.org/tree.html, and various related documents.

2 The retained technologies shown in Table 1 result from qualitatively evaluating the potential technologies based on screening information prepared by EPA, CPEO, and other organizations for sites across the United States, using the screening criteria listed above, and are ultimately based on the experiences gained at similar sites and professional knowledge and judgment.

Final

Remedial Investigation and Feasibility Study (RI/FS) Report Washington State Penitentiary, Walla Walla, Washington Washington State Department of Corrections

	Remedial Alternatives				
Criteria	1. Land Use Controls	2. Low Permeability Cap with Land Use Controls			
Construction Costs	\$389,078	\$1,826,853			
Operation and Maintenance Costs	\$54,655	\$73,941			
Total Costs:	\$443,733	\$1,900,794			

Table 15. Remedial Alternatives Estimated Costs

	Alte	ernativ	ve
	1	2	3
Threshold Criteria			
Protection of HH & Env.	1	3	1
Cleanup Standards Compliance	1	2	1
Compliance with ARARs	1	2	1
Compliance monitoring	3	3	0
Threshold Criteria Subtotal	6	10	3
Permanent Solutions Criteria			
Protectiveness	1	2	
Reduction of toxicity, mobility, volume	1	3	
Cost	4	3	
Long-term effectiveness	2	3	
Short term risks	4	3	
Implementability	4	3	
Public concerns	4	3	
Permanent Solutions Criteria Subtotal	20	20	0
Reasonable Restoration Time Frame Criteria			
Potential Risk posed by site	1	3	
Practability of shorter restoration time frame	1	2	
Current/Future use of site	2	2	
Alternative water supply	0	0	
Institutional controls reliability	2	3	
Monitor migration of hazardous substances	2	2	
Toxicity of hazardous substances	2	3	
Reasonable Restoration Time Frame Criteria Subtotal	10	15	0
Additional Performance Criteria			
Institutional controls and financial assurances	3	2	
Release and Migration	1	2	
Dilution and Dispersion	0	0	
Remediation levels	0	0	
Additional Performance Criteria Subtotal	4	4	0
Total Alternative Score	40	49	3

Table 16. Alternative Analysis Scoring Matrix

-- = Not evaluated as alternative does not meet all Threshold Criteria.

Appendix A

Areas of Concern (AOCs) Identified in the RI Work Plan



Drawn by: AES	10:002330WD2703\fig 7

Updated 02/25/2010 by Parametrix, Inc.

Appendix B Landfill Geophysical Survey Results

GEOPHYSICAL INVESTIGATION REPORT

WASHINGTON STATE PENITENTIARY LANDFILL WALLA WALLA, WASHINGTON

FOR

PARAMETRIX, INC. SUMNER, WASHINGTON

JULY 2011

PHILIP H. DUOOS GEOPHYSICAL CONSULTANT July 1, 2010

Our Ref: 905

Mr. Michael Warfel Parametrix, Inc. 1231 Fryar Avenue P.O. Box 460 Sumner, WA 98390

> **REPORT:** Geophysical Investigation Washington State Penitentiary Landfill Walla Walla, Washington Parametrix PN 215-2662-004

Dear Mr. Warfel:

This letter report summarizes the results of the geophysical investigation that I performed at the Washington State Penitentiary Landfill between May 19 – 21, 2010. The primary purpose of the investigation was to delineate the lateral extent of landfill materials using magnetometry methods. Limited electromagnetic (EM-31) surveying was done around portions of the suspected perimeter of the landfill materials. An attempt was made to determine the depth of burial of the landfill material using ground penetrating radar (GPR) methods. The GPR data was very limited in depth penetration at the site because of the fine-grained silt and loess in the near-surface. The magnetic survey provided good results on the lateral extent of possible buried landfill material as well as locating concentrations of buried metal. Preliminary results of the survey were provided to you and Mr. Vance Atkins (HWA GeoSciences Inc.) shortly after the field work was performed to help in locating test pits.

The magnetic survey was performed along transects spaced 20 feet apart which provided reasonable definition of landfill boundaries and large concentrations of buried ferrous material. Both total field and vertical gradient data were recorded along each transect at station intervals ranging from 4 to 7 feet. An EG&G Geometrics G-858 Cesium Magnetometer was used to measure and record the data, and a Trimble AG114 Global Positioning System was used to obtain station locations to sub-meter accuracy in most cases. A brief description of the geophysical methods is attached (Appendix A).

INTERPRETATION RESULTS

The interpretation results of the magnetic data are shown on Figure 1. The interpreted results utilized both the total field and vertical gradient magnetic data. The edges of the landfill in some areas were also based on the limited EM-31 survey results which helped in interpreting the magnetic data. The results are also shown on the Total Magnetic Field Data Map (Figure 2) and the Vertical Gradient Data Map (Figure 3).

Philip H. Duoos PH/FAX: (425) 882-2634 13503 NE 78th Place, Redmond, Washington, 98052 Email: geopyg@aol.com The total magnetic field data is a measure of the earth's natural magnetic field which is affected by ferrous objects such as drums, storage tanks, rebar, metal debris, etc. Cultural features such as fences, vehicles, and manhole covers can also affect the data. The earth's field changes naturally throughout the day as well, but these changes were not large enough to affect the interpretation of the data.

The vertical gradient data is the difference in the earth's magnetic field measured between the two magnetometer sensors. The top sensor is approximately 6 feet above the ground surface, and the lower sensor is about 3 feet above the ground. The data recorded at the top sensor was used to create the total field data contours because it is farther from the ground and less susceptible to small amounts of scattered ferrous material. The vertical gradient data is influenced to a greater degree by shallow metal and smaller amounts of metal.

The gradient data may also detect disturbances in the native soils due to trenching and grading activities. These activities disturb the original remnant magnetic orientation of the soil particles when they were deposited. Natural changes in the soils due to different materials (zones of gravels or cobbles) or natural erosion may also be the source of these minor disturbances in the gradient data. The gradient data is less affected by cultural interferences such as fences and vehicles, and is also not affected by the naturally occurring changes in the earth's total field throughout the day.

The anomalous magnetic data were classified into three types of anomalous zones: based on the magnitude of the magnetic anomaly.

High Anomalous Zone: Indicates large concentrations of buried metal.

Moderate Anomalous Zone: Indicates moderate concentrations of buried metal.

Low Anomalous Zone (extent of landfill): Indicates low concentrations of buried metal and/or disturbed soils and is interpreted to be the extent of the main landfill area.

The anomalous zone classifications were based primarily on the magnitude of the magnetic anomalies. The magnitude of the anomaly depends on the depth of the material and the mass of the buried ferrous material. The spacing of 20-feet between transect lines will also play a part in the magnitude of small, discrete anomalies. A relatively large single object (such as an appliance or monitoring well) may not cause much of an anomaly if it was located midway between two transects, but would create a large anomaly if directly beneath a transect line. The 20-foot line spacing was designed to delineate the edge of the major landfill material and to characterize large zones of buried metal. Small, scattered amounts of buried metal may not have been detected.

Anomalies associated with visible features such as monitoring wells, culverts, fences and other cultural features are not interpreted as indicating buried metal. Some small anomalies related to large amounts of surface metal are also not shown. However, in most cases the extent of visible surface metal was smaller than the anomalous zones, indicating that additional buried metal is present in proximity to the visible surface metal (often observed protruding from the ground surface).

A subtle change in the electromagnetic (EM-31) data was observed along a linear trend in the northern portion of the site (Figure 1). This linear feature may indicate a buried utility or perhaps a former trench or gulley that has been filled in with fill material. This linear feature heads in the general direction of a manhole in the distance to the east of the chain link fence.

GEOPHYSICAL METHODOLOGY

Magnetic data were obtained using a EG&G Geometrics 858 Cesium Magnetometer. Both total field data (nanoTeslas) and vertical gradient data (nanoTeslas/meter) were digitally recorded at 1 to 1.5 second intervals while walking along each transect. This provided a spacing of about 4 to 6 feet between stations. Transects were spaced 20 feet apart and oriented in a general north-south direction.

Global positioning data were measured using a Trimble AG 114 GPS system at 1-second intervals. The data were differentially corrected and typically provided sub-meter accuracy. The GPS coordinates are referenced to UTM Metric, WGS-84, 1984.

Limited electromagnetic surveying was performed using a Geonics Limited EM-31 Terrain Conductivity Meter. The EM-31 instrument was monitored in real-time while walking short transects (about 40 feet long) that intersected the suspected edge of the landfill. This limited scanning was performed at numerous locations along the northern edge of the landfill, and in the southeast corner of the landfill.

Blue flagging was placed at the interpreted edges of the landfill material based on the field interpretation of the EM-31 data. These blue flags were later located during the magnetometer survey with the GPS system. The EM-31 results were useful in interpreting the magnetic data, especially along the northern boundary of the landfill which is less distinct than the southern edge.

Numerous survey lines were scanned with a GSSI SIR-3000 Digital ground penetrating radar (GPR) system using a 200 MHz antenna. The GPR data did not provide consistent information regarding either the lateral or vertical extent of buried landfill material. The presence of the fine-grained silt and loess in the near surface limited the depth of penetration of the GPR to a foot or two in areas with loess at the surface. In barren areas of the site (generally ash landfill at the surface) the GPR was able to penetrate a bit better, but still only to depths of 4 to 5 feet.

SURVEY CONTROL

Reference baselines were established at the site using 300-foot tape measures and PVC pin flags and wood lathe. Reference baselines oriented east-west were marked with alternating yellow pin flags and pink pin flags at 20-foot intervals. The pin flags were labeled with their local coordinate location (e.g.: 100E, 200N) and were left in the ground as a reference for future explorations.

The magnetic survey was performed while walking along transects oriented north-south. Tall, brightly marked range poles were placed at each reference baseline along the transect being surveyed so a straight line was maintained. The baselines were spaced 100 to 200 feet apart depending on visibility so that at least one, and often several, range poles were visible along each transect.

The reference baselines were established with the help of Vance Atkins (HWA GeoSciences Inc.). Many of the reference flags were surveyed using the GPS system to provide accurate locations of the baselines. The locations of roads, fences and other features were also surveyed using the GPS system.

CONCLUSIONS

The use of the magnetic method provided a rapid and non-intrusive means of investigating the areas of concern for possible buried ferrous material (such as buried drums, reinforced concrete debris, metal debris and other landfill materials). However, because of the numerous variables involved in all geophysical investigations, there is a possibility that some subsurface features may not have been detected, including possible landfill materials. As with any geophysical investigation, only direct observations using test pits or other means can ultimately characterize the anomalies and other subsurface conditions.

The numerous test pits that were completed at the site shortly after the geophysical investigation was performed generally agree with the interpreted results. Test pit TP-1 was located to the north of the interpreted landfill in the vicinity of the linear trend observed in the EM-31 data. Although it did encounter some brick and concrete construction debris, no large amounts of metal were noted in the test pit log, and no utility was observed. Test pit TP-2 was located within the Low Anomalous Zone, and did detect some trace amounts of metal in a fairly thin 5-foot layer. Most of the test pits in the High Anomalous Zones encountered large amounts of metal, in several cases over 10 to 15 feet thick.

Please do not hesitate to contact me if you have any questions or comments regarding this information, or if you require further assistance. I appreciated the opportunity to work with you on this interesting project.

Sincerely,

In H. Aum

Philip H. Duoos Geophysical Consultant

Attachments



DESCRIPTION OF TECHNIQUES

EG&G 858 CESIUM MAGNETOMETER/GRADIOMETER

The EG&G 858 magnetometer/gradiometer is a rapid, effective and non-destructive instrument used to locate buried ferrous material (drums, pipes, mineral deposits, archaeological objects, etc.). The gradiometer consists of two sensors and a digital recording unit carried in a harness by one operator. Data are recorded and later downloaded to a computer.

Two types of measurements are recorded during a gradiometer survey: the total field and vertical gradient. The total field measurement is affected by regional changes in the magnetic field and anomalies caused by buried ferrous material. The vertical gradient data are more affected by near-surface sources and provides better resolution of shallow buried objects.

Several factors can limit the effectiveness of the magnetometry method including the proximity of cultural interferences (such as buildings, fences and reinforced concrete), and the size, depth and magnetic susceptibility of the target.

ELECTROMAGNETICS (EM-31)

The EM-31 measures subsurface conductance using the principles of electromagnetic induction to depths of about 18 feet, and can detect large amounts of metal at greater depths. The EM-31 is portable, rapid and non-destructive. It has a fixed boom containing the transmitter and receiver coils so that handling and data gathering is easily achieved by one operator.

Factors which may increase subsurface conductivities include higher moisture content, greater amounts of finer materials, increased clay and/or silt content, soil contamination and/or ground water contamination. The presence of buried metal can also affect the conductivity data. The detectability of metal objects (buried pipes, drums, etc.) can be enhanced by measuring the change in the magnitude of the primary field (inphase component) of the induced magnetic field.

Several factors can limit the effectiveness of the EM method including the proximity of cultural interferences (such as buildings, fences and reinforced concrete) the presence of highly conductive materials (such as clays and water), and the size, depth and conductivity contrast of the target.

GROUND PENETRATING RADAR

Some of the uses of GPR include locating buried tanks and drums, delineating boundaries of landfills and trenches, and defining voids and geologic stratigraphy. Although other techniques can also provide this information, GPR is less affected by cultural interferences such as overhead powerlines, buildings, and fences. GPR can also provide higher resolution of the target in many cases. A variety of antennas can be used depending on subsurface conditions and the objective of the survey. Resolution of shallow objects requires higher frequencies, while lower frequencies work better for deeper investigations.

Several factors can affect the effectiveness of the GPR method including reinforced concrete at the surface, the presence of highly conductive materials (such as clays and water), the size, depth, and physical property of the target and; in stratigraphic investigations, the conductivity contrast between stratigraphic units. The presence of numerous buried objects may mask objects and/or stratigraphy below.



July 2011, Project No. 905 Figure 1





Appendix C Landfill Test Pit Geologic Logs

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

	COHESIONLESS S	OILS	COHESIVE SOILS			
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)	
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250	
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500	
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000	
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000	
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000	
			Hard	over 30	>4000	

USCS SOIL CLASSIFICATION SYSTEM

	MAJOR DIVISIONS		0	GROUP DESCRIPTIONS
Coarse	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL
Soils	More than			Poorly-graded GRAVEL
	50% of Coarse	Gravel with Fines (appreciable	GGGM	Silty GRAVEL
	on No. 4 Sieve	amount of fines)	GC	Clayey GRAVEL
	Sand and	Clean Sand	SW	Well-graded SAND
More than	Sandy Soils 50% or More of Coarse Fraction Passing No. 4 Sieve Silt and Clay	(little or no fines)	SP	Poorly-graded SAND
on No.		Sand with	SM	Silty SAND
Size		amount of fines)	SC	Clayey SAND
Fine Grained Soils			ML	SILT
		Liquid Limit Less than 50%	CL	Lean CLAY
				Organic SILT/Organic CLAY
	Silt		MH	Elastic SILT
50% or More Passing	and	Liquid Limit 50% or More	СН	Fat CLAY
No. 200 Sieve Size			он	Organic SILT/Organic CLAY
	Highly Organic Soils		$\left \frac{\sqrt{1}}{\sqrt{1}} \right $ PT	PEAT

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit
000	Oslifarsia Davisa Datia
CBR	California Bearing Ratio
CN	
DD	Dry Density (pcr)
05	Direct Shear
GS K	Grain Size Distribution
	Meinture/Density Delationship (Dreater)
	Noisture/Density Relationship (Procior)
	Resilient Modulus
	Photoionization Device Reading
FF	Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
ΤV	Torvane
	Approx. Shear Strength (tst)
UC	Unconfined Compression
	SAMPLE TYPE SYMBOLS
Μ	2.0" OD Split Spoon (SPT)
\square	(140 lb. hammer with 30 in. drop)
Т	Shelby Tube
\perp	
	3-1/4" OD Split Spoon with Brass Rings
\bigcirc	Small Bag Sample
	Large Bag (Bulk) Sample
	Core Run
\square	Non-standard Penetration Test
	(3.0" OD split spoon)
	GROUNDWATER SYMBOLS
∇	Groundwater Level (measured at
<u>-</u> ¥-	time of drilling)
T	Groundwater Level (measured in well or
-	open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE	
Boulders	Larger than 12 in	
Cobbles	3 in to 12 in	
Gravel Coarse gravel Fine gravel	3 in to No 4 (4.5mm) 3 in to 3/4 in 3/4 in to No 4 (4.5mm)	
Sand Coarse sand Medium sand Fine sand	No. 4 (4.5 mm) to No. 200 (0.074 mm) No. 4 (4.5 mm) to No. 10 (2.0 mm) No. 10 (2.0 mm) to No. 40 (0.42 mm) No. 40 (0.42 mm) to No. 200 (0.074 mm)	
Silt and Clay	Smaller than No. 200 (0.074mm)	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.



Washington State Penitentiary Remedial Investigation/Feasibility Study Walla Walla, Washington

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS	
< 5%	Clean	
5 - 12%	Slightly (Clayey, Silty, Sandy)	
12 - 30%	Clayey, Silty, Sandy, Gravelly	
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)	
Components are arranged in order of increasing quantities.		

MOISTURE CONTENT



FIGURE:

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2009-138-22

C-1

XCAVATION COMPANY: MASCO XCAVATING EQUIPMENT: Caterpillar 320C Excavator URFACE ELEVATION: ± Feet		LOCATION: Former CDL, 350N/550E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins
SSVMBOL SXMBOL SSVMBOL DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
Dark gray silty TOPSOIL with grass and ro SM Medium dense dark gray silty SAND with c debris (brick, concrete), dry. [LANDFILL] Grading moist Grading moist ML Medium stiff brownish-yellow SILT, moist. Test pit completed to 10 feet bgs. Ground water not encountered. Test pit backfilled with excavated material.	onstruction WSP-01-01-TP-08	
OTE: This log of subsurface conditions applies only at the speci and therefore may not necessarily be indicative of other ti	ned location and on the date indicated mes and/or locations.	
HWA HWAGEOSCIENCES INC.	Wasnington State Penitentia Remedial Investigation/Feasibility Walla Walla, Washington	y Study LOG OF TEST PTT PAGE: 1 of 1

EXCAVATION COMPANY: MASCO EXCAVATING EQUIPMENT: Caterpillar 320C Excavate SURFACE ELEVATION: ± Feet	Dr	LOCATION: Former CDL, 450N/700E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins
. DEPTH (feet) SYMBOL USCS SOIL CLASS. DESCLIDIC	Z SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
0 ML Medium stiff yellow-brown SILT with 3 A: A Dark gray SILT and ASH with brick, F 3 A: A Dark gray SILT and ASH with brick, F A: A Image: Complete to the set of the s	construction debris, dry. race metal debris, dry. noist. [LOESS] terial.	
9 - 12 - 12 - 15 - 15 - 15 NOTE: This log of subsurface conditions applies only at th and therefore may not necessarily be indicative of	e specified location and on the date indicated other times and/or locations.	
HWA HWAGEOSCIENCES INC.	Washington State Penitentia Remedial Investigation/Feasibility Walla Walla, Washington	y LOG OF TEST PIT Study TP-02 PAGE: 1 of 1



HWAGEOSCIENCES INC.

Walla Walla, Washington

C-4

EXCAVATION O EXCAVATING E SURFACE ELE	COMPANY: MASCO EQUIPMENT: Caterpillar 320C Excavator VATION: ± Feet		LOCATION: Former CDL, 200N/600E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins	
DEPTH (feet) SYMBOL USCS SOIL CLASS.	DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO	
0 1 1 1 1 1 1 1 1 1 1 1 1 1	Light gray silty TOPSOIL with grass and root material Light gray grading dark gray SILT and ASH fill with construction debris, dry. [LANDFILL] Large concrete debris with steel (rebar and beams). Medium stiff dark yellow-brown SILT, trace gravel, r [LOESS] Test pit completed to 6 feet bgs. Ground water not encountered. Test pit backfilled with excavated material.	ials, dry. brick, WSP-01-04-TP-04 moist.		
NOTE: This log and the	NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.			
HWAGE	INC. Rel	Washington State Per medial Investigation/Fea Walla Walla, Washi	nitentiaryLOG OF TEST PITasibility StudyTP-04ingtonPAGE: 1 of 1	

EXCAVATION COMPANY: MASCO EXCAVATING EQUIPMENT: Caterpillar 320C Excavator SURFACE ELEVATION: ± Feet				LOCATION: Former CDL, 350N/550E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins
DEPTH (feet) SYMBOL	USCS SOIL CLASS.	DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
0 - - - - - - - - - - - - - - - - - - -	SM	Light yellow-brown SILT with grass, root material. Light gray-brown silty fill with metallic debris (sheet me concrete, and bricks. [LANDFILL] Two 55-gallon drums, damaged, no tops.	tal), WSP-01-05-TP-07	
9- 12- 15-	ML	Loose yellow-red SILT, trace debris, moist. Sloughing. [LOESS] Test pit completed to 10 feet bgs. Ground water not encountered. Test pit backfilled with excavated material.		
NOTE: Th	nis log of nd there	subsurface conditions applies only at the specified location fore may not necessarily be indicative of other times and/or I	and on the date indicated ocations. Washington State Pen	itentiary LOG OF TEST PIT
HWA	GEC	DSCIENCES INC.	Walla Walla, Washir	ngton PAGE: 1 of 1

PICTURE 2009-138-22.GPJ 3/12/12

SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
-	
√SP-01-06-TP-08	The second statement and the second
e date indicated	ry LOG OF TEST PIT
	e date indicated ington State Penitentia

EXCAVATION COMPANY: MASCO EXCAVATING EQUIPMENT: Caterpillar 320C Excavator SURFACE ELEVATION: ± Feet		LOCATION: Former CDL, 40N/680E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins
DEPTH (feet) SYMBOL USCS SOIL CLASS. DESCLIDION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
0 ML Dark brown to gray SILT and ASH, dry. - - - - - - 3 - ML - - - - - -		
6		
15 – NOTE: This log of subsurface conditions applies only at the spec and therefore may not necessarily be indicative of other t	fied location and on the date indicated mes and/or locations.	
HWA HWAGEOSCIENCES INC.	Washington State Penitentiary Remedial Investigation/Feasibility Stud Walla Walla, Washington	by LOG OF TEST PIT TP-07 PAGE: 1 of 1



PICTURE 2009-138-22.GPJ 3/12/12



EXCAVATION COMPANY: MASCO EXCAVATING EQUIPMENT: Caterpillar 320C Ex SURFACE ELEVATION: ± Feet	cavator	LOCATION: Former CDL, 60N/250E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins
DEPTH (feet) SYMBOL USCS SOIL CLASS. DESCL	SAMPLE TYPE SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
0 ML Light yellow-brown SILT with tr 3 - - 6 - - 9 - - 12 - -	ace debris (brick) on debris (Fencing, large	
15- NOTE: This log of subsurface conditions applies only and therefore may not necessarily be indicat	at the specified location and on the date indicated ve of other times and/or locations. Washington State Pen Remedial Investigation/Fea Walla Walla. Washir	tentiary LOG OF TEST PIT sibility Study TP-10
HWAGEOSCIENCES INC.		

EXCAVATION COMPANY: MASCO EXCAVATING EQUIPMENT: Caterpillar 320C Excavator

SURFACE ELEVATION: ± Feet

LOCATION: Former CDL, 60N/250E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins

DEPTH (feet)	SYMBOL USCS SOIL CLASS.	DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	
15	ML	Medium stiff yellow-brown SILT, trace caliche	e, moist. WSP-01-10-TP-15	
 21		Test pit completed to 16 feet bgs. Ground water not encountered. Test pit backfilled with excavated material.		
- - 24 -				
27				
30—				
NOTE:	This log of and there	subsurface conditions applies only at the specifie fore may not necessarily be indicative of other time	d location and on the date indicated es and/or locations.	
	[-WA-	Washington State P Remedial Investigation/F	enitentiary easibility Study

Walla Walla, Washington

LOG OF TEST PIT TP-10 PAGE: 2 of 2

PICTURE 2009-138-22.GPJ 3/12/12

HWAGEOSCIENCES INC.

PA

TEST PIT PHOTO

PAGE: 2 OF 2
EXCAVATION COMPANY: MASCO LOCATION: Former CDL, 190N/210E EXCAVATING EQUIPMENT: Caterpillar 320C Excavator DATE COMPLETED: 5/24/10 SURFACE ELEVATION: ± Feet LOGGED BY: V. Atkins **USCS SOIL CLASS** SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS SAMPLE TYPE DEPTH (feet) SYMBOL **TEST PIT PHOTO** DESCRIPTION 0 <u>\ 17</u> Silty loam TOPSOIL, with root material. Medium stiff yellow-brown SILT, dry. (FILL) ML 3 Wedge of construction debris (plastic, piping, wire). [LANDFILL] ML Medium stiff dark yellow-brown SILT, dry grading moist. [LOESS] 6 q Test pit completed to 10 feet bgs. Ground water not encountered. Test pit backfilled with excavated material. 12 15-NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations LOG OF TEST PIT Washington State Penitentiary HIWA-Remedial Investigation/Feasibility Study **TP-11** Walla Walla, Washington HWAGEOSCIENCES INC. PAGE: 1 of 1

PICTURE 2009-138-22.GPJ 3/12/12

EXCAVATIO EXCAVATIN SURFACE E	ON CO IG EO ELEV/	LOCATION: Former CDL, 160N/220E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins					
, DEPTH (feet) SYMBOL	USCS SOIL CLASS.	DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO			
	ML	Yellow-brown SILT with debris (brick fragments, plastic, wire).					
3-		Wedge of burned fill with brick, plastic. [LANDFILL]					
-		Silty FILL with sheet metal, brick, tile. [LANDFILL]					
6-							
9-							
12-							
15-15	15-JEW No Photo Available						
NOTE: This I and	NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.						
Washin Remedial Ir Wal		Washi WA Remedial Ir Val	ngton State Penitentiary nvestigation/Feasibility Study la Walla, Washington	LOG OF TEST PIT TP-12 PAGE: 1 of 2			
TIVAUEUJUIENUEJ INU.		INC.		PROJECT NO.: 2009-138-22 FIGURE: C-			

EXCAVATION COMPANY: MASCO EXCAVATING EQUIPMENT: Caterpillar 320C Excavator SURFACE ELEVATION: ± Feet	LOCATION: Former CDL, 160N/220E DATE COMPLETED: 5/24/10 LOGGED BY: V. Atkins	
DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
ML Medium stiff yellow SIL1, moist. Test pit completed to 16 feet bgs. Ground water not encountered. Test pit backfilled with excavated material.	WSP-01-12-TP-16	
21		
24		
27—		
30	fied location and on the date indicated	No Photo Available
and therefore may not necessarily be indicative of other til THE STATES AND A STAT	^{mes and/or locations.} Washington State Penitentiary Remedial Investigation/Feasibility Study Walla Walla, Washington	LOG OF TEST PIT TP-12 PAGE: 2 of 2

EXCAVATION EXCAVATING SURFACE ELE	COMPANY: MASCO EQUIPMENT: Caterpillar 320C Excavator EVATION: ± Feet		LOCATION: Former CDL, 120N/80E DATE COMPLETED: 5/25/10 LOGGED BY: V. Atkins			
, DEPTH (feet) SYMBOL USCS SOIL CLASS.	DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO			
3-	Silty loam TOPSOIL, with brush and root mat FILL with ash and debris (Concrete, metal co brick, fabric), dry. [LANDFILL]	nduit, cable,				
6-						
9						
12-						
15 – I I I I I I I I I I I I I I I I I I	15 - KXX I NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.					
Washington State Remedial Investigation Walla Walla, W			tentiary LOG OF TEST PIT TP-13 gton PAGE: 1 of 2			



XCAVATION COMPANY: MASCO XCAVATING EQUIPMENT: Caterpillar 320C Excav URFACE ELEVATION: ± Feet	ator	LOCATION: Former CDL, 0N/640E DATE COMPLETED: 5/25/10 LOGGED BY: V. Atkins
SSVMBOL SSXMBOL SSXMBOL DESCRIPT	S SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO
Image: Silty loam TOPSOIL, with brush at the second sec	d root material.	<image/>
OTE: This log of subsurface conditions applies only at and therefore may not necessarily be indicative	he specified location and on the date indicated f other times and/or locations.	
HWA HWA GEOSCIENCES INC.	Washington State Penitentian Remedial Investigation/Feasibility Walla Walla, Washington	y LOG OF TEST PIT Study TP-14 PAGE: 1 of 2





EXCAVATION C EXCAVATING E SURFACE ELEV	OMPANY: MASCO QUIPMENT: Caterpillar 320C Excavator /ATION: ± Feet		LOCATION: Former CDL, 120N/640E DATE COMPLETED: 5/25/10 LOGGED BY: V. Atkins			
, DEPTH (feet) SYMBOL USCS SOIL CLASS.	DESCRIPTION	SAMPLE TYPE SAMPLE NUMBER MOISTURE CONTENT(%) OTHER TESTS	TEST PIT PHOTO			
	Light brown silty TOPSOIL with dark gray/black ash layer.					
	Light brown SILT fill with dark gray/black ash layers. Ash layer					
	Fill with brick fragments, metal pipe and banding, flatware.	-	and a second and a second			
	Metal drum fragments. [LANDFILL]					
12-12-11 ML	Light yellow-brown SILT, moist. [LOESS]	 NSP-01-16-TP-12				
-	Test pit completed to 12 feet bgs. Ground water not encountered. Test pit backfilled with excavated material.	VOI -01-10-11 -12				
15						
NOTE: This log o and there	NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.					
Washington State Per Remedial Investigation/Fer Walla Walla, Wash			hitentiaryLOG OF TEST PITasibility StudyTP-16ngtonPAGE: 1 of 1			

Appendix D Soil Probe Boring Geologic Logs

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

	COHESIONLESS S	OILS	COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

USCS SOIL CLASSIFICATION SYSTEM

	MAJOR DIVISIONS	0	GROUP DESCRIPTIONS		
Coarse Grained	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL Poorly-graded GRAVEL	
30115	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GR GC	Silty GRAVEL Clayey GRAVEL	
	Sand and	Clean Sand	SW	Well-graded SAND	
More than 50% Retained	Sandy Soils 50% or More of Coarse Fraction Passing No. 4 Sieve	(little or no fines)	SP	Poorly-graded SAND	
on No. 200 Sieve		Sand with Fines (appreciable amount of fines)	SM	Silty SAND	
Size			SC	Clayey SAND	
Fine	Silt and Clay	Liquid Limit Less than 50%	ML	SILT	
Grained Soils			CL	Lean CLAY	
			OL	Organic SILT/Organic CLAY	
50% or Moro	Silt	Liquid Limit 50% or More	МН	Elastic SILT	
Passing	and		СН	Fat CLAY	
NO. 200 Sieve Size	-		ОН	Organic SILT/Organic CLAY	
	Highly Organic Soils		<u>\``</u>] PT	PEAT	

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
К	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression
	SAMPLE TYPE SYMBOLS
M	2.0" OD Split Spoon (SPT)
	(140 lb. hammer with 30 in. drop)
	Shelby Tube
	3-1/4" OD Split Spoon with Brass Rings
0	Small Bag Sample
	Large Bag (Bulk) Sample
	Core Run
\square	Non-standard Penetration Test
	(3.0" OD split spoon)
	GROUNDWATER SYMBOLS
∇	Groundwater Level (measured at
-	time of drilling)
Ţ	Groundwater Level (measured in well or

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE		
Boulders	Larger than 12 in		
Cobbles	3 in to 12 in		
Gravel Coarse gravel Fine gravel	3 in to No 4 (4.5mm) 3 in to 3/4 in 3/4 in to No 4 (4.5mm)		
Sand Coarse sand Medium sand Fine sand	No. 4 (4.5 mm) to No. 200 (0.074 mm) No. 4 (4.5 mm) to No. 10 (2.0 mm) No. 10 (2.0 mm) to No. 40 (0.42 mm) No. 40 (0.42 mm) to No. 200 (0.074 mm)		
Silt and Clay	Smaller than No. 200 (0.074mm)		

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.



Washington State Penitentiary Remedial Investigation/Feasibility Study Walla Walla, Washington

Components are arranged in order of increasing quantities.

open hole after water level stabilized)

DESCRIPTIVE TERMS

Slightly (Clayey, Silty, Sandy)

Clayey, Silty, Sandy, Gravelly

Very (Clayey, Silty, Sandy, Gravelly)

COMPONENT PROPORTIONS

Clean

PROPORTION RANGE

< 5%

5 - 12%

12 - 30%

30 - 50%

MOISTURE CONTENT			
Absence of moisture, dusty,			
Damp but no visible water.			
Visible free water, usually soil is below water table.			
	Absence of moisture, dusty, dry to the touch. Damp but no visible water. Visible free water, usually soil is below water table.		

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

FIGURE:

LEGEND 2009-138-22.GPJ 3/12/12

PROJECT NO.: 2009-138-22

<u>D-1</u>























D-12





D-14

Appendix E Soil Gas Probe Boring Geologic Logs

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

	COHESIONLESS S	OILS	COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

USCS SOIL CLASSIFICATION SYSTEM

	MAJOR DIVISIONS	0	GROUP DESCRIPTIONS		
Coarse Grained	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL Poorly-graded GRAVEL	
30115	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GO GM	Silty GRAVEL Clayey GRAVEL	
	Sand and	Clean Sand	SW	Well-graded SAND	
More than 50% Retained	Sandy Soils 50% or More of Coarse Fraction Passing No. 4 Sieve	(little or no fines)	SP	Poorly-graded SAND	
on No. 200 Sieve		Sand with Fines (appreciable amount of fines)	SM	Silty SAND	
Size			SC	Clayey SAND	
Fine	Silt and Clay	Liquid Limit Less than 50%	ML	SILT	
Grained Soils			CL	Lean CLAY	
			OL	Organic SILT/Organic CLAY	
50% or Moro	Silt	Liquid Limit 50% or More	МН	Elastic SILT	
Passing	and		СН	Fat CLAY	
NO. 200 Sieve Size	-		ОН	Organic SILT/Organic CLAY	
	Highly Organic Soils		<u>\``</u>] PT	PEAT	

TEST SYMBOLS

%F	Percent Fines		
AL	Atterberg Limits: PL = Plastic Limit LL = Liquid Limit		
CBR	California Bearing Ratio		
CN	Consolidation		
DD	Dry Density (pcf)		
DS	Direct Shear		
GS	Grain Size Distribution		
К	Permeability		
MD	Moisture/Density Relationship (Proctor)		
MR	Resilient Modulus		
PID	Photoionization Device Reading		
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)		
SG	Specific Gravity		
TC	Triaxial Compression		
TV	Torvane		
	Approx. Shear Strength (tsf)		
UC	Unconfined Compression		
	SAMPLE TYPE SYMBOLS		
M	2.0" OD Split Spoon (SPT)		
\square	(140 lb. hammer with 30 in. drop)		
	Shelby Tube		
<u> </u>			
	3-1/4" OD Split Spoon with Brass Rings		
0	Small Bag Sample		
	Large Bag (Bulk) Sample		
	Core Run		
\Box	Non-standard Penetration Test		
	(3.0" OD split spoon)		
GROUNDWATER SYMBOLS			
∇	Groundwater Level (measured at		
<u> </u>	time of drilling)		
Ţ	Groundwater Level (measured in well or		

open hole after water level stabilized)

DESCRIPTIVE TERMS

Slightly (Clayey, Silty, Sandy)

Clayey, Silty, Sandy, Gravelly

Very (Clayey, Silty, Sandy, Gravelly)

MOISTURE CONTENT

dry to the touch.

Absence of moisture, dusty,

Damp but no visible water.

Visible free water, usually

FIGURE:

soil is below water table.

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel Coarse gravel Fine gravel	3 in to No 4 (4.5mm) 3 in to 3/4 in 3/4 in to No 4 (4.5mm)
Sand Coarse sand Medium sand Fine sand	No. 4 (4.5 mm) to No. 200 (0.074 mm) No. 4 (4.5 mm) to No. 10 (2.0 mm) No. 10 (2.0 mm) to No. 40 (0.42 mm) No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

LEGEND OF TERMS AND SYMBOLS USED ON **EXPLORATION LOGS**

Walla Walla, Washington

Washington State Penitentiary

Remedial Investigation/Feasibility Study

2009-138-22 PROJECT NO .:

E-1

LEGEND 2009-138-22.GPJ 3/12/12

HWAGEOSCIENCES INC.

COMPONENT PROPORTIONS

Components are arranged in order of increasing quantities.

DRY

MOIST

WET

Clean

PROPORTION RANGE

< 5%

5 - 12%

12 - 30%

30 - 50%






























Appendix F

RI Monitoring Well Geologic Logs and Construction Diagrams

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

	COHESIONLESS SOILS		COHESIVE SOILS						
Density N (blows/ft) Approximate Relative Density(%) Consiste		Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)					
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250				
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500				
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000				
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000				
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000				
			Hard	over 30	>4000				

USCS SOIL CLASSIFICATION SYSTEM

	MAJOR DIVISIONS		0	GROUP DESCRIPTIONS
Coarse Grained	Gravel and Gravelly Soils	Clean Gravel (little or no fines)	GW	Well-graded GRAVEL Poorly-graded GRAVEL
30115	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravel with Fines (appreciable amount of fines)	GR GC	Silty GRAVEL Clayey GRAVEL
	Sand and	Clean Sand	SW	Well-graded SAND
More than 50% Retained	Sandy Soils	(little or no fines)	SP	Poorly-graded SAND
on No. 200 Sieve	50% or More of Coarse	Sand with Fines (appreciable	SM	Silty SAND
Size	Fraction Passing No. 4 Sieve	amount of fines)	SC	Clayey SAND
Fine	Silt		ML	SILT
Grained Soils	and Clay	Liquid Limit Less than 50%	CL	Lean CLAY
			OL	Organic SILT/Organic CLAY
50% or More	Silt	t invited to invite	МН	Elastic SILT
Passing	and Clay	50% or More	СН	Fat CLAY
NO. 200 Sieve Size	-		ОН	Organic SILT/Organic CLAY
	Highly Organic Soils		<u>\``</u>] PT	PEAT

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
к	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer
	Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression
	SAMPLE TYPE SYMBOLS
X	2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
\bot	Shelby Tube
	3-1/4" OD Split Spoon with Brass Rings
0	Small Bag Sample
	Large Bag (Bulk) Sample
	Core Run
	Non-standard Penetration Test (3.0" OD split spoon)
	GROUNDWATER SYMBOLS
$\overline{\Delta}$	Groundwater Level (measured at time of drilling)
Ţ	Groundwater Level (measured in well or

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel Coarse gravel	3 in to No 4 (4.5mm) 3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand Coarse sand Medium sand Fine sand	No. 4 (4.5 mm) to No. 200 (0.074 mm) No. 4 (4.5 mm) to No. 10 (2.0 mm) No. 10 (2.0 mm) to No. 40 (0.42 mm) No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.



Washington State Penitentiary Remedial Investigation/Feasibility Study Walla Walla, Washington

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components a	e arranged in order of increasing quantities.

MOISTURE CONTENT

open hole after water level stabilized)



FIGURE:

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

PROJECT NO.: 2009-138-22





o DEPTH (feet) J SYMBOL	ASTM SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE: (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION	NOTES
	ML	LOESS							Concrete seal. Sodium bentonite chips from "
5			0	S1					
- 10 - - -			0	S2	·				Bentonite slurry from 10 to 3. ft. bgs.
- 15		Becomes light brownish gray.	0	S3	·				
20		Brownish gray, clayey SILT, moist.	0	S4					2" diam threaded Sch 40 PVC riser pipe from + 2.0 to 38.2 ft. bas
25	sw	Drilling difficulty increases and indicates gravel <u>At 24 ft. bgs.</u> Dark reddish brown, trace gravelly SAND, moist. Basalt gravel is weathered and subrounded.	0	S5					
30-		(ALLUVIUM) Grades to reddish brown, gravelly SAND.	0	S6					Sodium bentonite chips from
35		Drilling indicates cobbles from 34 to 35 ft. bgs.	0	S 7					32 to 35 ft. bgs. 10/20 silica sand filter pack from 35 to 49 ft. bgs.
40		Grades to trace gravelly SAND.	0	S8					2" threaded Sch 40 PVC
45		Becomes wet.	0	S9					0.010" slotted screen, 38.2' 48.2' bgs. ∑ Threaded female end cap.
	s log o	f subsurface conditions applies only at the specified loc	 cation	and o	n the dat	e indic	ated		• ·
and		nore may not necessarily be indicative of other times a				<u>.</u>	•	M	ONITORING

SSVBOL (1994)	DESCRIPTION addish brown, sandy GRAVEL, slightly wet. asalt gravel is weathered and subrounded. attings and drilling indicate cobbles and bulders. addish brown, clayey silty GRAVEL, slightly et. attings and drilling indicate cobbles and bulders from 60 to 63 ft. bgs. attal boring depth = 63 feet round water observed at 46 feet below ound surface during drilling. attal water measured at 38.8 feet below ound surface 7 days after well was installed.		S10 S11	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES Backfilled with sodium bentonite chips from 49 to 63 ft. bgs.
50 50 60 55 60 60 60 65 70 75 75 75 75 75 75 75 75 75 75	addish brown, sandy GRAVEL, slightly wet. Isalt gravel is weathered and subrounded. Intrings and drilling indicate cobbles and bulders. Addish brown, clayey silty GRAVEL, slightly et. Intrings and drilling indicate cobbles and bulders from 60 to 63 ft. bgs. Intring depth = 63 feet round water observed at 46 feet below ound surface during drilling. Intring depth = 63.8 feet below ound surface 7 days after well was installed.	0	S10 S11 S12					Backfilled with sodium bentonite chips from 49 to 63 ft. bgs.
55 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	eddish brown, clayey silty GRAVEL, slightly et. uttings and drilling indicate cobbles and bulders from 60 to 63 ft. bgs. 	0	S11 S12					
60 CL 60 CL 65 CL 65 CL 65 CL 65 CL 65 CL 65 CL 67	uttings and drilling indicate cobbles and bulders from 60 to 63 ft. bgs. 	0	S12					
65 To Gr - Gr 70 Gr 75 80 - -	otal boring depth = 63 feet round water observed at 46 feet below ound surface during drilling. round water measured at 38.8 feet below ound surface 7 days after well was installed.							
- Gr 70- gr 	ound water measured at 38.8 feet below ound surface 7 days after well was installed.							Centralizers intalled on PVC well at 18, 39 and 47 ft. bgs.
- - - - - - - - - - - - - - - - - - -								
80								
85								
90-								
95 -								
- - - - 00								
NOTE: This log of su	ubsurface conditions applies only at the specified lo	cation	and or	n the date	indica	ited		
and therefore	WASHINGTON STATE PEN.	LAI SHI	NDF NGT	^{ns.} ILL EV ON	/AL.		M WE	ONITORING ELL: MW-2 PAGE: 2 of 2



MWELL 97124 8/27/98

SURF	ACE ELEV	ATION: 910 ± Feet					LOG	GED BY:	NRH .	
DEPTH (feet)	SYMBOL ASTM SOIL CLASS	DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	PEN. RESISTANCE (blows/6 inches)	OTHER TESTS	PID (ppm)	WELL COMPLETION SCHEMATIC	NOTES	
50]	sw	Dark reddish brown, gravelly SAND, moist. Basalt gravel is weathered and subrounded.	0	S10						
- - 55			0	S11						
- 60- - -			0	S12					Sodium bentonite chips from 59 to 62.5 ft. bgs.	
65 - -			0	S13					10/20 silica sand filter pack from 62.5 to 77 ft. bgs.	
		SAND layer from 67 to 68 feet bgs.							-	
70	GW C C C C C C	Dark reddish brown, sandy GRAVEL, moist. Basalt gravel is weathered and subrounded.	0	S14					2" threaded Sch 40 PVC, 0.010" slotted screen, 66.6' - 76.6' bgs.	
75	∷∷sw ∵ ∵ Gw	Dark reddish brown, gravelly SAND, moist. Becomes wet. Gray, GRAVEL, wet	0	S15					Threaded female end cap. Backfilled with sodium heaptonite chins from 77 to 81	
80-			0	S16					ft. bgs.	
85-		Total boring depth = 81 feet Ground water observed at 67 feet below ground surface during drilling.							Centralizers intalled on PVC well at 30, 66 and 75 ft. bgs.	
-		Ground water measured at 66.9 feet below ground surface 6 days after well was installed.								
- 90 -										
- - -										
95-1										
	This log o and there	of subsurface conditions applies only at the specified loc afore may not necessarily be indicative of other times ar	ation	and on location	the date	indica	ated			-
		WA WASHINGTON STATE PEN.	LA	NDFI	LL EV	AL.		MC WE	DNITORING LL: MW-3	
HWA	GEOS	CIENCES INC. WALLA WALLA, WAS	SHI	NGT	ON			I	PAGE: 2 of 2	
					PF	ROJE		o.: 97	7124 FIGURE:	

~~~











|--|















MWELL 2009-138-22.GPJ 3/13/12

2009-138-22





MWELL 2009-138-22.GPJ 3/13/12















MWELL 2009-138-22.GPJ 3/13/12






F-10





MWELL 2009-138-22.GPJ 3/13/12

2009-138-22 FIGURE: F-11







MWELL 2009-138-22.GPJ 3/13/12

### Appendix G

Groundwater Monitoring Field Data Records

| Groundwater Sampling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Field Data Sheet                               | No. 2                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                | Well #: <u>MW</u> -                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                | Sample #: WSP- MW- 01- GW-             |
| Project Number: 215-2662-004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date: 7/12/10                                  | 071210                                 |
| Project Name: WSP R1/FS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Location: Walla Wa                             | lla Pen.                               |
| Project Address:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Sampled By: R.Simmo                            | ns Prayson                             |
| Client Name: WSP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Purged By: B.P.P.                              |                                        |
| Casing Diameter: 2″ 4″ 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6″ Other                                       |                                        |
| Depth to Water (feet): $60.75$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Purge Volume Measurement Method                | "12 and will 3 stoowatch               |
| Depth of Well (feet): 65,76                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Date Purged: 7/12/10                           |                                        |
| Reference Point (surveyor's notch, etc.): top N( (u)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purge Time (from/to:                           | - 1201                                 |
| Date/Time Sampled: 7/12/10, 1200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                |                                        |
| Purge Volume Calculation: ( $\pi r^2$ h)(7.48 gal/ft³)(# Casir                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ng volumes)                                    |                                        |
| Purge Volume (gallons) for: $2'' = (0.16)(h)(\#Cv); 4'' = 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)           |                                        |
| Calculated Purge Volume (gallons): 10w Flow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Actual Purge Volume <del>(gallons):-</del> /~  | <u>C</u> L                             |
| WATER<br>TIME LEVEL pH COND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | DO                                             | REDOX                                  |
| (2400 hr) (feet) (units) (mS/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | (mg/L) TEMP °C SAL                             | .% (mv)                                |
| 1145 - 6.49 884                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\frac{4.86}{14.50}$ <u>-</u>                  |                                        |
| 1144 00.45 $6.51$ $644$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 454 10,16 -                                    | $\frac{BO}{148}$                       |
| $\frac{1152}{157}$ $\frac{0.52}{10}$ $\frac{0.1}{10}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\frac{1155}{1131}$ 10,50 -                    |                                        |
| $\left  \frac{157}{120} - \frac{1000}{120} - \frac{1000}{120} - \frac{1000}{1200} - \frac{1000}{1200}$ | <u>- 10.55</u> -                               |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u> 100 100 100 100 100 100 100 100 100 10</u> |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | p                                              |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                | \                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u>,</u>                                       |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u></u>                                        |                                        |
| Purge Equipment: Hlab, New tubing, Redisa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Flo Pump<br>impling Equipment: We w Jubi       | ng Red: - Flo pumpt                    |
| Laboratory: On Site Da                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ite Sent to Lab:                               | 7/15/10                                |
| Chain-of-Custody (yes/no):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | eld QC Sample Number:                          |                                        |
| Shipment Method: 66 male (PP) sp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | blit With (names[s]/organization):             | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                        |
| Well integrity: OK, CUT STOOL TOLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | h, replaced with                               | www. wsr ock                           |
| Remarks: deconid proprin Alle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GNOX PI 114.5                                  | FIRSED IN DI                           |
| Signature: Konald U.Sw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5024                                           |                                        |
| Deconid pump before befo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | resetting@ 63'                                 |                                        |
| Pulled old bailer and rotted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | poly line from In                              | side casing                            |
| Flow rate (ourse/sample) 380                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | mil/min the Di                                 | Page <u>1</u> of <u>1</u>              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 'COV                                           |                                        |

# Groundwater Sampling Field Data Sheet No. 2

Well #:  $\underline{M} = C$ Sample #:  $\underline{WSP} = MW = 02 - GW = 071210$ 

|      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                                                | •                                                                                  |                                                                                                                | Samp                                             | le #: <u>WJ[_</u> # |                                         |
|------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------|-----------------------------------------|
|      | Project Number:          | 715-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 667-00                   | 14                                                             | Date:                                                                              | 710                                                                                                            | 110                                              |                     |                                         |
|      | Project Name:            | LICP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | RI/E<                    | <u>,</u>                                                       | Location:                                                                          |                                                                                                                | 110                                              |                     |                                         |
|      | Project Address          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1/1/1-                   | ·                                                              | -<br>Sampled Bv:                                                                   | PC                                                                                                             |                                                  | 2                   |                                         |
|      | Client Name:             | 1.152                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                                                                | –<br>Purged By:                                                                    | DE                                                                                                             | 00<br>00                                         | 24500               | <b>N</b>                                |
|      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                                                | -                                                                                  | <u>_NJ+</u>                                                                                                    | 11                                               |                     |                                         |
|      | Casing Diameter          | r: 2″ _ <b>X</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ,<br>4′                  | ·                                                              | 6″                                                                                 | Other                                                                                                          |                                                  |                     |                                         |
|      | Depth to Water (         | (feet): 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 317                      | ana balan serien serien an | Purge Volum                                                                        | e Measurement N                                                                                                | Aethod: 11                                       | has barn            | \$ stomptch                             |
|      | Depth of Well (fe        | eet):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 19,90                    |                                                                | Date Purged:                                                                       | " 7/12/                                                                                                        | 10                                               | VAS C/I             | 10101000 1                              |
|      | Reference Point          | (surveyor's no                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | otch, etc.):             | PV/ casin                                                      | -<br><b>)                                    </b>                                  | from/to: 141                                                                                                   | 10-150                                           | B                   |                                         |
|      | Date/Time Samp           | oled: 7 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10.15                    | 00                                                             | - }                                                                                | <b>1</b>                                                                                                       |                                                  | -                   |                                         |
|      | . Purae                  | Volume Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ation: $(\pi r^2 h)(7.)$ | 48 gal/ft <sup>3</sup> )(# Casi                                | na volumes)                                                                        | ₩,,¢₩₩,@₩¢duđati u nicu kristata na cu nucu                                                                    | noficiaria da mana ana amin'ny faritr'i Cartolog |                     |                                         |
|      | Purge                    | Volume (gallor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ns) for: 2″ = (0.        | 16)(h)(#Cv); 4″ =                                              | (0.653)(h)(#Cv)                                                                    | ; 6″ = (1.48)(h)(#C                                                                                            | V)                                               |                     |                                         |
|      | Calcul                   | ated Purge Vol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ume (gallons):           | low flow                                                       | Actual Purge                                                                       | Volume <del>(gallons</del>                                                                                     | »NBL.                                            |                     |                                         |
|      |                          | WATER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          | an a                       | nanna sa sha na sha na sha na sha na sha na sha sha sha sha sha sha sha sha sha sh | ahah (75 CTTA) a San Anna an Anna Anna Anna ann an Anna |                                                  |                     |                                         |
|      | TIME<br>(2400 br)        | LEVEL<br>(feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | pH<br>(units)            | COND<br>(mS/cm)                                                | DO<br>(mg/L)                                                                       | TEMP °C                                                                                                        | SAL %                                            | REDOX               |                                         |
|      | 1444                     | (1001)<br>#===                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.96                     | 682                                                            | 7.02                                                                               | 18.27                                                                                                          | ()<br>()                                         | 132                 |                                         |
|      | 1448                     | 43.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 6.96                     | 447                                                            | 4,80                                                                               | 21.03                                                                                                          | ()2005. ·                                        | 132                 |                                         |
| 1456 | -14525-                  | <b>6</b> 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 76.96                    | 685                                                            | 7.29                                                                               | 26.2018.0                                                                                                      | 3 ~                                              | 139                 | Clow jed.                               |
|      | 14569                    | and the second se |                          |                                                                |                                                                                    |                                                                                                                |                                                  |                     | ter is show                             |
|      | 1500                     | 6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                                                                |                                                                                    |                                                                                                                |                                                  | 5                   | top = 02                                |
|      | 1502                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.94                     | 607                                                            | 7.22                                                                               | 17.05                                                                                                          |                                                  | 130                 | provo oct 150                           |
|      | 15086                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.95                     | 686                                                            | 7.52                                                                               | 16.47                                                                                                          |                                                  | 127                 | Ein.                                    |
|      | 1508                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.95                     | 685                                                            | 7.40                                                                               | 16.49                                                                                                          |                                                  | 126                 |                                         |
|      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                                                |                                                                                    | ·                                                                                                              |                                                  |                     |                                         |
|      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                                                | ·                                                                                  |                                                                                                                | ·                                                |                     |                                         |
|      | ·                        | ••                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <u></u>                  | <u></u>                                                        | . <u> </u>                                                                         | <u>.</u>                                                                                                       |                                                  |                     |                                         |
|      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                                                |                                                                                    |                                                                                                                |                                                  |                     |                                         |
|      |                          | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                          | . <u></u> ,                                                    |                                                                                    | · ·                                                                                                            |                                                  |                     |                                         |
|      |                          | <u> </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <u> </u>                 | artable                                                        | <u></u>                                                                            |                                                                                                                |                                                  | - Fil               | Ø .                                     |
|      |                          | Hlab, ne                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | w tabina .               | Redi- Flo                                                      |                                                                                    | port                                                                                                           | 1: 37                                            | 2edr T              |                                         |
|      | Furge Equipment          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          | <u>(                                    </u>                   | amping equipin                                                                     | ient. Torn                                                                                                     |                                                  | ······              |                                         |
|      | Laboratory:              | on Sil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | e Env                    | iron, Di                                                       | ate Sent to Lab:                                                                   |                                                                                                                | 7/15/1                                           | 0                   |                                         |
|      | Chain-of-Custoc          | ty (ves/no):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          | Fi                                                             | eld QC Sample                                                                      | Number:                                                                                                        |                                                  | ~7                  |                                         |
|      | Shipment Metho           | od:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | sample                   | <u>( ( PP )</u> si                                             | olit With (names                                                                   | [s]/organization)                                                                                              | :                                                | <b>"</b> .          | $\Phi_{1}$                              |
|      | Well Integrity: <b>(</b> | Kire                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | noved                    | old tef                                                        | on bail                                                                            | urtrott                                                                                                        | ed poly                                          | 1 line              | from                                    |
|      | Remarks:                 | FLOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ale UZA                  | Dunllai                                                        | n) ins                                                                             | ide ca                                                                                                         | sing                                             |                     | i.                                      |
|      | Signature:               | Raza                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | al-A                     |                                                                | / 110                                                                              |                                                                                                                | ~                                                |                     |                                         |
| ]    |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | vau.                     | SIN                                                            |                                                                                    | <u> </u>                                                                                                       | _                                                | 1                   |                                         |
|      | (                        | extra v                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | olume                    | collecte                                                       | a at A                                                                             | IN. 7 H                                                                                                        | or MS                                            | MOD                 | 9                                       |
|      |                          | Collee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | red full                 | sample                                                         | set fr                                                                             | pr MS/                                                                                                         | MSD,                                             | ·                   | $\mathcal{M}$                           |
|      | Í                        | Decon'a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1 pump                   | p in Al                                                        | LOND X =                                                                           | DI wa                                                                                                          | .kr                                              | Page <u>1</u> of    | 1 1                                     |
|      |                          | Set po                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | rtable                   | pump @                                                         | 2 about                                                                            | 47'                                                                                                            |                                                  |                     |                                         |
|      |                          | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                          | • 3                                                            |                                                                                    | • •                                                                                                            |                                                  |                     |                                         |
|      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                                                |                                                                                    |                                                                                                                |                                                  |                     | 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - |

| WSP~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | hW = 09 - GW = 071310 < Sample #: Artig = 9 - 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Number: $215 - 2662 - 004$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date: 7)3)0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Project Address:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sampled By: PS'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Client Name: 1.14D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Purged By: RX PP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Casing Diameter: 2" 4" 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | " Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Depth to Water (feet): B2,49                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Purge Volume Measurement Method: 12 grad cy 3 Japrah                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Depth of Well (feet): NM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date Purged: 7 13 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Reference Point (surveyor's notch, etc.): top PVC (asis)<br>Date/Time Sampled: 7/13/10, 09/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Purge Time (from/to:51 - 1017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casir})$<br>Purge Volume (gallons) for: $2'' = (0.16)(h)(\#\text{Cv}); 4'' = Calculated Purge Volume (gallons): 1/1 (t) (r) (r) (r) (r)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | g volumes)<br>0.653)(h)(#Cv); 6″ = (1.48)(h)(#Cv)<br>Actual Purge Volume ( <del>gallons</del> ): 10 之 と。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| TIME       LEVEL       pH       COND $(2400 \text{ hr})$ (feet)       (units)       (mS/cm) $0953$ -       6.93       6.44 $0957$ $82.55$ 6.91 $626$ $100 \chi_3$ -       6.91 $627$ $1005$ $82.52$ $6.93$ $637$ $1005$ $82.52$ $6.93$ $637$ $1006$ -       - $6.929$ $1013$ $82.64$ $6.929$ $6255$ $1017$ - $6.93$ $625$ $1017$ -       - $6.93$ $625$ $1017$ -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         - <td< td=""><td>DO<br/>(mg/L) TEMP °C <math>SAL %</math> (mV)<br/><math>B_{3}36</math> [6.93 <math>Very</math> 139<br/><math>B_{3}6</math> [6.93 <math>Very</math> 139<br/><math>B_{3}6</math> [6.93 <math>Very</math> 139<br/><math>B_{3}7</math> 20.78 <math>Sl'eqht</math> 126<br/>1.23<br/><math>B_{3}7</math> 21.07 <math>J</math> 127<br/><math>B_{5}51</math> 20.93 <math>J</math> 127<br/><math>B_{5}51</math> 20.93 <math>J</math> 128<br/><math>B_{5}60</math> 11.01 <math>Chear</math> 129<br/><math>B_{5}51</math> 10.71 <math>J</math> 122<br/>I = I = I = I = I = I = I = I = I = I =</td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DO<br>(mg/L) TEMP °C $SAL %$ (mV)<br>$B_{3}36$ [6.93 $Very$ 139<br>$B_{3}6$ [6.93 $Very$ 139<br>$B_{3}6$ [6.93 $Very$ 139<br>$B_{3}7$ 20.78 $Sl'eqht$ 126<br>1.23<br>$B_{3}7$ 21.07 $J$ 127<br>$B_{5}51$ 20.93 $J$ 127<br>$B_{5}51$ 20.93 $J$ 128<br>$B_{5}60$ 11.01 $Chear$ 129<br>$B_{5}51$ 10.71 $J$ 122<br>I = I = I = I = I = I = I = I = I = I =                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Laboratory:<br>Chain-of-Custody (resho):<br>Shipment Method:<br>Well Integrity:<br>Remarks:<br>Shiph initial furbidity<br>Signature:<br>Chain-of-Custody (resho):<br>Sampler (PP)<br>Sampler (PP)<br>Sampler (PP)<br>Space<br>Sampler (PP)<br>Space<br>Signature:<br>Con Sife En Vision Da<br>Signature:<br>Con Sife En Vision Da<br>Sife En Vision Da<br>S | The Sent to Lab:<br>The Sent to Lab:<br>The Sent to Lab:<br>The Complexity of the Sentence of the S |

.

Page <u>1</u> of <u>1</u>

cour!

ap.

(w)

Groundwater Sampling Field Data Sheet No. 2

| 1 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Well #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Sample #: <u>W3P-</u> MW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | *03~ <u>(</u> |
| Project Number: 215-2662-004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date: 71310                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |
| Project Name: WSP RIFS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Location:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| Project Address:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sampled By: R.Simpong P. Pracson                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |
| Client Name: <u>WSP</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Purged By: 123, 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| Casing Diameter: 2″ <u>Å</u> 4″                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6″ Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |
| Depth to Water (feet): 72.06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Purge Volume Measurement Method: 11 grad, cy 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Stopwale)     |
| Depth of Well (feet): 75.44 78.60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Date Purged: 71310                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| Reference Point (surveyor's notch, etc.):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\gamma$ Purge Time (from/to: 0857 - 0916                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| Date/Time Sampled: 71310,0430                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
| Purge Volume Calculation: (π <sup>2</sup> h)(7.48 gal/ft³)(# Casi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ng volumes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |
| Purge Volume (gallons) for: 2" = (0.16)(h)(#Cv); 4" =                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (0.653)(h)(#Cv); 6'' = (1.48)(h)(#Cv)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Actual Fulge Volume (ganono).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |
| TIME LEVEL pH COND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | DO REDOX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |
| (2400  hr) (feet) (units) (mS/cm)<br>(2400  hr) ( $160  cm$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | (mg/L) TEMP °C SAL % $(mv)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7.24          |
| $\frac{0}{0903}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\frac{11}{10} \frac{11}{10} 11$ |               |
| 0.10 $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ | $6_{1}32_{-}$ $18_{2}7_{-}$ $ 121_{-}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |
| 0911 72 80 6,79 732                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6.30 18.42 - 110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |
| 0915 72.79 680 731                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6.28 18.38 - 105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
| ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
| Purge Equipment: Hlab, Portable Redi-flse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ampling Equipment: Redi- 10 \$ purge fue in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | "             |
| Laboratory: <u>On-Sile</u> Da                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ate Sent to Lab: 7/15/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |
| Chain-of-Custody (yes)ho):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | eld QC Sample Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |
| Shipment Method: <u>Sampler (PP)</u> Sp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | plit With (names[s]/organization):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| Well Integrity: OK, Decon'd pu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mp before place ina at 75'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |
| Remarks: Flow rate = 460 - 11n in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
| Signature: Ronald. 5mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |

| Groundwater | <sup>•</sup> Sampling | <b>Field Data</b> | Sheet | No. | 2 |
|-------------|-----------------------|-------------------|-------|-----|---|
|-------------|-----------------------|-------------------|-------|-----|---|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | erter eer                                                                                              |                                                                                       |                                                                               | , er der er in                                                                  | We                                          | :11 #: <u>MW</u>                                        | -14          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------|--------------|
| Project Number: 2-15<br>Project Name: WSF<br>Project Address:<br>Client Name: WS5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | - 2662-<br>RILFS                                                                                       | 604<br>004                                                                            | Date:<br>Location:<br>Sampled By<br>Purged By:                                | $\frac{-6W-07}{7}$ $\frac{7}{13}$ $\frac{R.5'm}{R.5'}$                          | 1310 Samp<br>10<br>nons, P.                 | le#: Aud<br>Pearsor                                     | 25           |
| Casing Diameter: 2″                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u> </u>                                                                                               |                                                                                       | 6″                                                                            | Other                                                                           |                                             |                                                         |              |
| Depth to Water (feet):<br>Depth of Well (feet):<br>Reference Point (surveyor's<br>Date/Time Sampled: 7<br>Purge Volume Ca<br>Purge Volume (ga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 72.87<br>67.80<br>s notch, etc.): by<br>13 10<br>culation: $(\pi^2h)(7.4$<br>llons) for: $2'' = (0.7)$ | 9 PVC Cos<br>113 0<br>18 gal/ft <sup>3</sup> )(# Cas<br>16)(h)(#Cv); 4″               | Purge Volun<br>Date Purged<br>Purge Time<br>Sing volumes)<br>= (0.653)(h)(#Cv | the Measuremen<br>1: $7   3$<br>(from/to: <u>1) (</u><br>); 6" = (1.48)(h)(-    | t Method: $1Lq$<br>100<br>24 - 1126<br>#Cv) | rad, col                                                | 3. Stopwatch |
| $\begin{array}{c} \text{Calculated Purge} \\ \hline \text{Calculated Purge} \\ \hline \text{WATER} \\ \text{LEVEL} \\ (2400 \text{ hr}) \\ (feet) \\ \hline \underline{1106} \\ \underline{-1106} \\ -1106$ | pH<br>(units)<br>6.95<br>6.85<br>6.85<br>6.85<br>6.85<br>6.85<br>6.85<br>6.85<br>6.85<br>6.85          | COND<br>(mS/cm)<br><u>Ø11</u><br><u>B05</u><br><u>B06</u><br><u>B04</u><br><u>B04</u> | DO<br>(mg/L)<br>7.99<br>7.22<br>7.13<br>6.67                                  | TEMP °C<br>16,38<br>16,85<br>18,93<br>18,93<br>18,93<br>20.80<br>20.80<br>20.80 | HUNK<br>SAL%<br>Mod<br>Mod<br>Mod<br>Lear   | REDOX<br>(mv)<br>180<br>180<br>162<br>152<br>129<br>112 |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                        |                                                                                       |                                                                               |                                                                                 |                                             |                                                         |              |
| Purge Equipment: RLd'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Flo, Hlabz                                                                                             | new tu                                                                                | ງ ໄກ ໆ<br>Sampilng Equip                                                      | meht: Redi                                                                      | ·Floz Au                                    | 2ª tubi                                                 | 0°J          |
| Laboratory:<br>Chain-of-Custody (yes)no):<br>Shipment Method:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sampler                                                                                                | (PP) \$                                                                               | Date Sent to Lab<br>Field QC Sample<br>Split With (name                       | :<br>> Number:<br>s[s]/organizatio                                              |                                             | 10                                                      |              |
| Well Integrity:OkRemarks:flow =Signature:Co                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | pump se<br>33pm1/m<br>nood Q                                                                           | 10 65<br>.Sm                                                                          |                                                                               |                                                                                 |                                             |                                                         |              |
| Deconid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | pump be                                                                                                | efore                                                                                 | placin                                                                        | ginw                                                                            | rell                                        |                                                         |              |

| Groundwater | Sampling | Field | Data | Sheet | No. | 2 |
|-------------|----------|-------|------|-------|-----|---|
|-------------|----------|-------|------|-------|-----|---|

| $\frac{ WSP-mW-13-c_{1}W-0+13+c_{2}W-1+1}{ WSP-mW-13+c_{1}W-0+13+c_{2}W-1+1} \leq p_{2} \leq p_$                                                                                                                                                                                                                                                                                                                                                                                                    |       | •                 |                                    |                                       |                                         |                                          |                  | We                         | 11 #: <u>AW</u> | -13          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|------------------------------------|---------------------------------------|-----------------------------------------|------------------------------------------|------------------|----------------------------|-----------------|--------------|
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ŧ     |                   |                                    |                                       | <u> </u>                                | NSP-MW-                                  | 13-GW-0          | 71310 Samp                 | le #: Att       | TJ RS        |
| Project Name: $W3P$ P1       P5       Location:         Project Address: $W3P$ Purged By: $R.S. pP$ Casing Diametor: $Z'$ $4''$ $S''$ Other         Depth of Wall (test): $5H.16$ Date Purged By: $R.S. pP$ Depth of Wall (test): $5H.16$ Date Purged: $T   13   10$ Date Purged: $T   13   10$ Reference Point (surveyor's notic), etc.): $f_{20}PV(C(cA)n_p$ Purge Volume Gallenbin: (m')(7.48 gath N/6 Casing volumes)         Purge Volume (gallenbin): $f_{12} > 10$ 12.30       Purge Volume (gallenbin): $f_{10} > 102$ WATTER       pH       COND       DO $rAcb$ (mv)         TIME       LEVEL       pH       COND       No.241       No.241       No.241         122.5       -       6.69       1134       5.49       No.241       No.241       No.241         122.8.7       -       6.64       10.49       5.45       20.10       No.241       117         122.8.7       -       6.65       10.74       6.12       20.75       No.241       117         122.8.7       -       6.65       9.87       6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       | Project Numbe     | r: 215-                            | - 2662-                               | -004                                    | Date:                                    | 713              | 0                          |                 |              |
| Project Address:Sampled By:K.S. Incharon J. P. PrecessorCitent Name: $WJ \leq P$ Purged By:RS, PPCasing Diameter: $z' \times 4' = 6'$ OtherdisplayDepth to Wate (red): $SH, Id$ Purge Volume Measurement Method: $11 \leq q_{Cd} \leq q_{d}$ Depth to Wate (red): $SH, Id$ Date Purge Volume Measurement Method: $11 \leq q_{Cd} \leq q_{d}$ Depth to Wate (red): $SH, Id$ Date Purge Volume (Calculation: (ur/h)(7.48 gulf?)(9 Casing volumes)Purge Volume Calculation:(ur/h)(7.48 gulf?)(9 Casing volumes)Purge Volume (gallones):102 L.Catculated Purge Volume (gallones):102 L.TIMEWATERWATERPurge Volume (gallones):VarterPurge Volume (gallones):12.2354,1406.6911356.6910746.1220.1312.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.28-12.29-12.28-12.29-12.28-<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | Project Name:     | WSP                                | RIF                                   | 5                                       | Location:                                |                  | · · ·                      |                 |              |
| Client Name: $\{U}$ $\searrow$ $\searrow$ $\searrow$ $\swarrow$ $\swarrow$ $\swarrow$ $\swarrow$ $\square$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       | Project Addres    | s:                                 | · · · · · · · · · · · · · · · · · · · | • •                                     | Sampled By:                              | R.Simi           | nonsit.                    | Pearson         |              |
| Casing Diameter: $z^*$ $4^*$ $6^*$ Other         Depth to Water (teet): $5U_1$ $31$ Purge Volume Measurement Method: $1[\_q_Rq_d, q_d]$ $4^*$ Shop ushe         Beptin of Well (teet): $5T_1/d$ Date Purget: $713/10$ Date Purget: $713/10$ Beterence Point (surveyor's noteh, etc.): $12g_P$ ( $NC(us)n_P$ Purge Time (from/to: $123/10$ Purge Volume Calculation: $(n^*h)(7.4g galfh)(4Cos)$ ; $4^* = (0.653)(h)(4Cos)$ ; $5^* = (1.48)(h)(4Cos)$ $Tu Q_P$ Purge Volume (galions): $Dusle Time (from/to:       12.3 - n_2 H_H         Date Purge Volume (galions):       Dusle Time (from/to:       12.3 - n_2 H_H         Date Purge Volume (galions):       Dusle Time (from/to:       12.3 - n_2 H_H         Casing Diameter:       4^* (A_{20})       102 102         Casing Volume (galions):       Dusle Time (from/to:       12.3 - n_2 H_H         Casing Volume (galions):       Dusle Time (from/to:       102 102         TME       EVEL       PH       Conso       030 15,171 h_{10}         12.15       4^* 6,251 15,171 h_{10} 1171 h_{10} h_{10} h_{10} $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | Client Name:      | <u>_W5</u>                         | P                                     |                                         | Purged By:                               | _RS,1            | 2P                         |                 |              |
| Depth to Water (test): $511, 31$<br>Depth of Well (test): $512, 16$<br>Reference Point (surveyor's notch, etc.): $f_{2,p}$ ( $N(c,a;)n_{p}$<br>Date Purget: $713 10$<br>Purge Volume Calculation: $(a^{rh})(7.4g gal/th^{1/2} Casing volumes)$<br>Purge Equiphent ( $a^{rh}$ (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       | Casing Diamet     | er: 2″                             | <u>× 4</u>                            |                                         | 6″                                       | Other            | _                          |                 |              |
| Depth of Well (feet): $\underline{SP}/\underline{K}$<br>Reference Point (surveyor's notch, etc.): $\underline{L_{20}} (\underline{VC}(\underline{ASIN}) = Purge Time (from to: 1/2.13 ~ 1/2.44)$<br>Date Purge Volume Calculation: $(\pi^{2}h)(7.4 \text{ galr})(\# \text{Casing volumes})$<br>Purge Volume Calculation: $(\pi^{2}h)(\# \text{Casing volumes})$<br>Purge Volume Calculation: $(\pi^{2}h)(\# \text{Casing volumes})$<br>The $Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallense): 10\frac{1}{2} L.THE Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallense): 10\frac{1}{2} L.THE Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallons): 10\frac{1}{2} L.The Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallonse): 10\frac{1}{2} L.THE Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallonse): 10\frac{1}{2} L.The Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallonse): 10\frac{1}{2} L.The Level Prove Volume (gallons): Low Chow Actual Purge Volume (gallonse): 10\frac{1}{2} L.The Level Prove Volume (gallonse): Level (gallonse): 10\frac{1}{2} L.The Level Prove Volume (gallon$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | Depth to Water    | (feet): <u>54</u>                  | 31                                    |                                         | Purge Volum                              | e Measurement    | Method: 1L G               | rad. cy)        | \$ stopwatch |
| Reference Point (surveyor's note), etc.): $\int_{DO} P' (C_{(CS)} \cap_{\Omega} Purge Time (from ho: 12.35 - 12.14) DateTime Sampled: T   12   10, 12.30 Purge Volume Calculation: (m*h)(7.48 gu/ft)(# Casing volumes) Purge Volume (callons) for: Z* (0.16)(h)(CV); 4* (0.653(h)(4CV); 6* (1.48)(h)(fCV) Calculated Purge Volume (gallons): 1002 (H ovo Actual Purge Volume (gallenes): 10^{-2} L.TIME LEVEL pH COND DO *3.5 REDOX(2400 hr) (teet) (unite) (mS/cm) (mgL) TEMP*C *4.44%. (m)12.15 * 6.64 11135 6.30 116,174 high 174612.15 * 6.64 11135 5.49 19.92 high 132212.28 * \frac{12.289}{12.289} * 6.64 110 9 5.75 20.11 ***********************************$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       | Depth of Well (   | feet): 50                          | . 16                                  |                                         | Date Purged                              | : 7113           | 3/10                       |                 |              |
| DateTime Samplet: $\frac{1}{12}$ 10, $\frac{12.30}{12.40}$<br>Purge Volume (alculation: $(\pi^{+}h)(7.48 \text{ gall}^{+})(\ell \text{ Casing volumes})$<br>Purge Volume (gallons): $1000$ $\ell = (0.683)(h)(\ell \text{CV}); \ell^{*} = (1.48)(h)(\ell \text{CV})$<br>Calculated Purge Volume (gallons): $1000$ $\ell = (0.683)(h)(\ell \text{CV}); \ell^{*} = (1.48)(h)(\ell \text{CV})$<br>Calculated Purge Volume (gallons): $1000$ $\ell = (0.683)(h)(\ell \text{CV}); \ell^{*} = (1.48)(h)(\ell \text{CV})$<br>TIME LEVEL PH COND DO $\frac{1}{12}$ $\frac{1}{$                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | Reference Poir    | nt (surveyor's n                   | otch, etc.):                          | pPVCcasin                               | Purge Time (                             | (from/to: 12     | 13-124                     | 4               |              |
| Purge Volume Calculation: $(\pi^{+})(7.48 \text{ gaility})(42 \text{ gaility})(42 \text{ gaility})(47  ga$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       | Date/Time Sam     | pled:                              | 310,                                  | 1230                                    | an a | <u></u>          |                            |                 |              |
| Purge Volume (gallons): In: $Z = 0.16/1/1/V J, S = 0.033/1/1/V J, S = 0.16/1/1/V J, D = 1.0 = 0.02 L. Calculated Purge Volume (gallons): In U.S. (Flow Actual Purge Volume (gallons): In U.S. (my) TIME LEVEL PH COND DO SALAS (my) iZ1S - 6.69 1175 6.39 19.19 high 176 IZ23 54,40 6.68 1109 5.32 20.11 mod 119 IZ23 54,40 6.68 1109 5.35 20.11 mod 119 IZ23 54,40 6.68 1109 5.35 20.11 mod 119 IZ23 54,40 6.65 1014 6.29 13.09 clears h 132 IZ23 1 54.41 6.65 1014 6.29 13.09 clears h 132 IZ23 1 54.41 6.65 973 6.23 16.79 J 1309 clears h 132 IZ23 1 54.41 6.65 973 6.23 16.79 J 1309 clears h 132 IZ23 1 6.65 973 6.41 1079 J 16.72 mod 119 IZ23 1 6.65 973 6.41 1079 J 16.79 J 16.79 J 16.79 J 1000 mod 119 Purge Equipment: Red) - Flo, Hlab 4, New Holdsman Sampling Equipment: Red) - Flo 4 Mew Holds Purge Equipment: Red) - Flo, Hlab 4, New Holdsman Sampling Equipment: Red) - Flo 4 Mew Holds Sampling Equipment: Red) - Flo, Hlab 4, New Holdsman Sampling Equipment: Red) - Flo 4 Mew Holds Hell Integrity: OK Remarks: Flow 360 ml m. in _ pump Sect at 56 Signature: Respired Q. Some$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | Purg              | e Volume Calcu                     | $\pi^2h$ (7                           | .48 gal/ft <sup>3</sup> )(# Cas         | sing volumes)                            | N 6% (1 48)/b)/# | 10-1A                      |                 |              |
| $\begin{array}{ c c c c c c c c c c c c c c c c c c c$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       | Purge             | e volume (gallo<br>Ilated Purge Vo | ons) for: 2" = (u<br>plume (gallons)  | 1.16)(1)(#CV); 4"<br>1: <u>Low</u> Flor | = (0.653)(n)(#CV)<br>₩ Actual Purge      | ;                | H): 102 L                  | - •             |              |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                   | WATER                              |                                       |                                         |                                          | *************    | turb                       | <u></u>         |              |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | TIME<br>(2400 hr) | LEVEL<br>(feet)                    | pH<br>(units)                         | COND<br>(mS/cm)                         | DO<br>(mg/L)                             | TEMP °C          | ~33<br>, <del>SAL %-</del> | REDOX<br>(mv)   |              |
| $\frac{1219}{1223} - \frac{1661}{54.90} \frac{1137}{6.68} \frac{5.49}{10.9} \frac{19.92}{5.75} \frac{19.9}{20.11} \frac{132}{119} \frac{132}{119}$ $\frac{1228}{1228} - \frac{12289}{1228} - \frac{16.67}{10.671} \frac{10.79}{6.12} \frac{5.75}{20.11} \frac{20.11}{1000} \frac{10.71}{119} \frac{119}{119}$ $\frac{17.22}{1238} - \frac{16.65}{10.671} \frac{9.89}{6.23} \frac{10.79}{10.79} \frac{10.71}{1.209} \frac{10.71}{1.209} \frac{1100}{10.71} \frac{1100}{1.200}$ $\frac{1228}{1238} - \frac{16.65}{10.65} \frac{9.89}{9.3} \frac{6.23}{6.23} \frac{10.79}{10.79} \frac{1}{1.209} \frac{1328}{10.79} \frac{1100}{1.200}$ $\frac{12424}{12424} - \frac{6.65}{6.65} \frac{9.89}{9.3} \frac{6.23}{6.9} \frac{10.79}{1.209} \frac{1}{1.209} \frac{10.71}{1.209} \frac{1100}{1.200}$ $\frac{12424}{1.209} - \frac{16.65}{6.65} \frac{9.89}{9.3} \frac{6.23}{6.9} \frac{10.79}{1.209} \frac{1}{1.209} \frac{10.91}{1.209}$ $\frac{12424}{1.209} - \frac{16.65}{6.65} \frac{9.89}{9.3} \frac{6.9}{6.23} \frac{10.79}{10.79} \frac{1}{1.209} \frac{10.91}{1.209}$ $\frac{10.7}{1.209} \frac{10.91}{1.209} \frac{10.91}{1.209}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | 1215              | 6.00-1)<br>(1.00-1)                | 6.69                                  | 1175                                    | 6,39                                     | 19,79            | high                       | 176             |              |
| $\frac{1228}{1228} = \frac{1223}{12289} = \frac{54,40}{12289} = \frac{6.68}{1067} = \frac{1109}{1079} = \frac{5,75}{20,75} = \frac{20.11}{1007} = \frac{119}{1077} = \frac{119}{$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       | 1219              |                                    | 6.67                                  | 1137                                    | 5,99                                     | 19,92            | high                       | 132             |              |
| $\frac{1228}{1238} + \frac{12289}{1238} - \frac{1228}{1238} + \frac{12289}{1238} - \frac{1228}{1238} + \frac{12289}{1238} + \frac{12289}{1238} + \frac{128}{1238} + \frac{1665}{1014} + \frac{1629}{1238} + \frac{17409}{1238} + \frac{1189}{1238} + \frac{1189}{$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       | 1223              | 54,40                              | 6.68                                  | 1109                                    | 5,75                                     | 20.11            | mod                        | 119_            |              |
| $\frac{17.52}{12.34} 571.41 \underbrace{6.65}_{10.14} \underbrace{6.29}_{6.23} \underbrace{173.09}_{10.79} \underbrace{cleartsh}_{132} inkrupke$ $\frac{17.38}{12.24} \underbrace{571.41}_{12.47} \underbrace{6.65}_{10.16} \underbrace{9.89}_{13.2} \underbrace{6.23}_{10.79} \underbrace{10.79}_{14.92} \underbrace{138}_{13.8}$ $\frac{12.47}{12.47} \underbrace{4}_{14} \underbrace{6.65}_{10.65} \underbrace{9.73}_{9.73} \underbrace{6.9}_{14.92} \underbrace{10.79}_{10.92} \underbrace{112.99}_{10.92} \underbrace{112.99}_{1$ | 1228- | 12289             |                                    | 6.67                                  | 1079                                    | 6.12                                     | 20,75            | mod                        | 107             | flow         |
| $\frac{1251}{1236} = \frac{54.41}{(.65)} = \frac{6.65}{989} = \frac{1014}{6.23} = \frac{1302}{16.79} = \frac{138}{138}$ $\frac{1241}{1241} = \frac{16.65}{6.65} = \frac{973}{973} = \frac{6.7}{6.9} = \frac{16.92}{16.92} = \frac{138}{1000}$ $\frac{141}{141} = \frac{1}{1600} = \frac{1}{16000} = \frac{1}{16000} = \frac{1}{160000} = \frac{1}{160000000000000000000000000000000000$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       | 17.52             |                                    | 6 / F <sup>er</sup>                   |                                         | 1 38                                     | 17.0             | the tech                   | 127             | interupted   |
| 12494       6.65       973       6.4)       16.92       mod       141         1249       16.65       973       6.4)       16.92       141       141       141         1240       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140       140                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | 1239              | 54.41                              | 6.65                                  | <u>1014</u><br>089                      | 6.23                                     | 1, 29            | <u>Clearis</u> n           | 138             |              |
| Purge Equipment: Redis - Flot High Might Rew Hubbing         Purge Equipment: Redis - Flot High Might Rew Hubbing         Eaboratory:       On Sife Environ Date Sent to Lab:         Field QC Sample Number:         Shipment Method:       Sampler (PP)         Split With (names[s]/organization):         Well Integrity:       OK         Remarks:       Flow = 360 mil Min - pump Set at 56         Signature:       Romald A. Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | 12424             |                                    | 6.65                                  | 973                                     | 641                                      | 16.97            | mpd                        | 141             |              |
| Purge Equipment: Red's - Flo, Hlab & New the sampling Equipment: Red's - Flo & New tub's mg<br>Laboratory: On Sile Enviro Date Sent to Lab: 7/15/10<br>Chain-of-Custody (Permo): Field QC Sample Number:<br>Shipment Method: Sampler (PP) Split With (names[s]/organization):<br>Well Integrity: OK<br>Remarks: Flow = 360 ml/min pump Set at 56<br>Signature: Romald a. Small                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                   |                                    |                                       |                                         |                                          | 10.10            | <u></u>                    |                 |              |
| Purge Equipment: Red's - Flot Hlab's New tubling Equipment: fed's - Flot New tubling<br>Laboratory: On Site Environ Date Sent to Lab: 7/15/10<br>Chain-of-Custody (Perlon): Field QC Sample Number:<br>Shipment Method: Sampler (PP) Split With (names[s]/organization):<br>Well Integrity: OK<br>Remarks: Flow= 360 ml/intin _ pump set at 56<br>Signature: Remarka A. Sm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                   |                                    | 6                                     |                                         |                                          |                  |                            |                 |              |
| Purge Equipment: Red's - Flo, Hlab 3, New Hubing Equipment: fed's - Flo 3 New Hubing<br>Laboratory: On Sife Enviro Date Sent to Lab: 7/15/10<br>Chain-of-Custody (Perlow): Field QC Sample Number:<br>Shipment Method: Sampler (PP) Split With (names[s]/organization):<br>Well Integrity: OK<br>Remarks: Flow= 360 mt/min_pump Set at 56<br>Signature: Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                   |                                    |                                       |                                         | <u> </u>                                 |                  | <u></u>                    |                 |              |
| Purge Equipment: Red's - Flos Hlab's new two sampling Equipment: fedi-Flos new tubins<br>Laboratory: On Sife Environ Date Sent to Lab: 7/15/10<br>Chain-of-Custody (res/no): Field QC Sample Number:<br>Shipment Method: Sampler (PP) Split With (names[s]/organization):<br>Well Integrity: OK<br>Remarks: Flow= 360 ml/min - pump set at 56<br>Signature: Remark Q. Small                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | ·                 |                                    |                                       |                                         |                                          |                  |                            |                 |              |
| Purge Equipment: Red's - Flor, Hlabz, New tubing Equipment: Red's - Floz New tubing<br>Laboratory: On Sike Enviro Date Sent to Lab: 7/15/10<br>Chain-of-Custody (Perlon): Field QC Sample Number:<br>Shipment Method: Sampler (PP) Split With (names[s]/organization):<br>Well Integrity: OK<br>Remarks: Flow = 360 ml/min - pump set at 56<br>Signature: Remarkd a. Small                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                   |                                    | ka ana ang sa sa sa                   |                                         | <del></del>                              |                  | <u></u>                    |                 | • • • •      |
| Purge Equipment: Red's - Flos, Hlab's, new tubing<br>Laboratory: On Site Enviro Date Sent to Lab: 7/15/10<br>Chain-of-Custody (res/no): Field QC Sample Number: -<br>Shipment Method: Sampler (PP) Split With (names[s]/organization): -<br>Well Integrity: OK<br>Remarks: Flow= 360 ml/min_pump Set at 56.<br>Signature: Ronald Q. Swa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                   | <u>x</u>                           | ·                                     |                                         |                                          |                  |                            |                 |              |
| Laboratory:       On Site Enviro Date Sent to Lab:       7/15/10         Chain-of-Custody (res/no):       Field QC Sample Number:       -         Shipment Method:       Sampler (PP)       Split With (names[s]/organization):       -         Well Integrity:       OK         Remarks:       Flow= 360 ml/min, - pump Set at 56       56         Signature:       Concol of A. Small       -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       | Purge Equipm      | ent:Redi-F                         | lo, Hlab                              | 3, new trab                             | いら<br>Sampling Equipr                    | ment: Redi-      | Flo3ne                     | w tubi          | ng           |
| Chain-of-Custody (Ves/no):<br>Shipment Method: <u>Sampler (PP)</u> Split With (names[s]/organization):<br>Well Integrity: <u>OK</u><br>Remarks: <u>Flow=360 ml min pump Set at 56</u><br>Signature: <u>Remarka</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       | Laboratory:       |                                    | On Sile                               | > Emilion                               | Date Sent to Lab                         | :                | 7115                       | 10              |              |
| Shipment Method: <u>Sampler (PP)</u> Split With (names[s]/organization):<br>Well Integrity: <u>OK</u><br>Remarks: <u>Flow=360 ml/min_pump set at 56</u><br>Signature: <u>Remarkat A. Sum</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       | Chain-of-Cust     | ody (ves/no):                      | <u> </u>                              | <u>.</u>                                | Field QC Sample                          | Number:          | <u> </u>                   | <u> </u>        | -            |
| Well Integrity: OK<br>Remarks: Flow= 360 ml/min_pump set at 56<br>Signature: Remarkal A. Swammer all                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       | Shipment Meti     | nod:                               | sampler                               | (PP)                                    | Split With (name                         | s[s]/organizatio | n):                        | · .             |              |
| Remarks: Flow= 360 ml/min, - pump set at 56<br>Signature: Ronald a. Sw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       | Well Integrity:   | <u>Ok</u>                          |                                       |                                         |                                          | <u></u>          |                            |                 | •            |
| Signature: Ronald a. Sv                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       | Remarks:          | Flow= 3                            | loo mal w                             | uth au                                  | . D cat                                  | at 51            |                            | ·               | 1            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       | Signature:        | Roy                                | ald O                                 | L. 5 V~                                 | mp set                                   | w <u>ı</u>       |                            |                 | - · ·        |
| Neron'd pump herore placing in Unell.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ļ     | no,               | onid                               | suma l                                | hefore                                  | placin                                   | a in 1           | vell.                      |                 | 4            |

Groundwater Sampling Field Data Sheet No. 2

| ·                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 |                                           | Samp                                  | le #:\\\\$?~ N                                                                                                 | 1W-10-6W-    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------|
| Project Number: 214            | 5-2662-004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Date:                                                                                                           | 711                                       | 4 1 10                                |                                                                                                                | 071410       |
| Project Name: 111              | 5P PUES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Location:                                                                                                       | <u> </u>                                  |                                       |                                                                                                                |              |
| Project Address:               | 51 1115                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Sampled By:                                                                                                     | RS'inne                                   | and P. R                              | e can                                                                                                          |              |
| Client Name:                   | ISP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Purged By:                                                                                                      | RS .                                      | 7P                                    |                                                                                                                |              |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 |                                           | F                                     | and a second |              |
| Casing Diameter:               | <u>2" X 4" 6</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5″                                                                                                              | Other                                     |                                       |                                                                                                                |              |
| Depth to Water (feet):         | <u>75-86</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Purge Volum                                                                                                     | e Measurement                             | Method: 1                             | drorg. 62                                                                                                      | 13, Stop wat |
| Depth of Well (feet):          | 82.60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Date Purged:                                                                                                    | 7 11                                      | 1)0                                   |                                                                                                                |              |
| Reference Point (survey        | or's notch, etc.): top PVC (45) no                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ) Purge Time (1                                                                                                 | rom/to: $0.8$                             | 50 - 0                                | 112                                                                                                            |              |
| Date/Time Sampled:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 | anna an  |                                       |                                                                                                                |              |
| Purge Volume                   | Calculation: $(\pi r^{n})(7.48 \text{ gal/II})(\# \text{ Casir})$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1g volumes)<br>(0.653)(h)(#Cv);                                                                                 | 6'' = (1.48)(h)(f                         | ŧCv)                                  |                                                                                                                |              |
| Calculated Put                 | rge Volume (gallons): <u>Iow</u> Flow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Actual Purge                                                                                                    | Volume (gallor                            | 15% 102 L                             |                                                                                                                |              |
| WATER                          | ana 2019 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 199                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | an the second | n gagan ana ga na ana ana ana ana ang ang | turb.                                 |                                                                                                                |              |
| TIME LEVEL<br>(2400 hr) (feet) | pH COND<br>(units) (mS/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DO<br>(mg/L)                                                                                                    | TEMP °C                                   | · ^ うう・<br>- <del>SAL %</del>         | REDOX<br>(mv)                                                                                                  |              |
| 0852 -                         | 6.57 673                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7.07                                                                                                            | 16,44                                     | mod.                                  | 202                                                                                                            |              |
| 0856 -                         | 6.66 670                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.59                                                                                                            | 17.61                                     | mod.                                  | 179                                                                                                            |              |
| 0900 75.8                      | 6.57 67]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.33                                                                                                            | 18.46                                     | clear                                 | 175                                                                                                            |              |
| 0904 -                         | 6.73 673                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.56                                                                                                            | 18.49                                     | _ <u>\</u>                            | 161                                                                                                            |              |
| 0908                           | 6.79 6+3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.30                                                                                                            | 19.19                                     |                                       | 134                                                                                                            |              |
| 0912                           | 6.81 673                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 40.0                                                                                                            | <u>18,91</u>                              | ¥                                     | 120                                                                                                            |              |
| ·                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u> </u>                                                                                                        | <u></u>                                   | <u></u>                               |                                                                                                                |              |
| <u> </u>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u> </u>                                                                                                        | <u> </u>                                  | <b></b>                               |                                                                                                                |              |
| <u></u>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 | <u></u>                                   |                                       |                                                                                                                |              |
|                                | · · ·····                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <u></u>                                                                                                         |                                           |                                       |                                                                                                                |              |
| <u> </u>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | · · · · · · · · · · · · · · · · · · ·                                                                           |                                           |                                       |                                                                                                                |              |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 | · · · ·                                   | <u> </u>                              |                                                                                                                |              |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u></u>                                                                                                         |                                           |                                       |                                                                                                                |              |
| Purge Equipment: R. C          | 1: Flo, Hlab, new tubin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | n<br>mpling Equipm                                                                                              | nent: Red:-                               | Flo, purg                             | etubing                                                                                                        |              |
| Laboratory:                    | Ma Site Currien DE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | te Sent to Lab                                                                                                  |                                           | 211                                   | 5/10                                                                                                           |              |
| Chain-of-Custody Nes/          | $\frac{UN}{UN} = \frac{UN}{UN} = UN$ | eld QC Sample                                                                                                   | Number:                                   | ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا | ~<br>`                                                                                                         |              |
| Shipment Method:               | Sampler (PP) SF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | blit With (names                                                                                                | s[s]/organizatio                          | n):                                   |                                                                                                                |              |
| Well Intervity Ak              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                 |                                           |                                       |                                                                                                                |              |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | . 1                                                                                                             |                                           | 0 10                                  |                                                                                                                |              |
|                                | $\frac{W rake * 180 \text{ ml/min}}{2}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | + places                                                                                                        | 1 pump.                                   | W TO                                  |                                                                                                                |              |
| Signature:                     | -onard U. Jim                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                 |                                           |                                       |                                                                                                                |              |
| Dec                            | on'd pump befor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | e plac                                                                                                          | ingin                                     | well                                  |                                                                                                                |              |

Page <u>1</u> of <u>1</u>

# Groundwater Sampling Field Data Sheet No. 2

|                                                                             | Well #: <u>M</u> W <sup>-</sup> ))                                              |             |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------|
|                                                                             | Sample #: <u>WSP-</u> MW-11-G                                                   | <u>~</u> در |
| Project Number: 215-7 (667 - 004                                            | Date: 7 14/10 071                                                               | 110         |
| Project Name: USP RIJES                                                     | Location:                                                                       |             |
| Project Address:                                                            | Sampled By: R, Simmons, P Regsson                                               | •           |
| Client Name: WSP                                                            | Purged By: RS, PP                                                               |             |
| Casing Diameter: 2″ <u>×</u> 4″ 6                                           | 5″ Other                                                                        |             |
| Depth to Water (feet): 70-72                                                | Purge Volume Measurement Method: 16 9500. () 3 Adagw                            | ch I        |
| Depth of Well (feet): 78,33                                                 | Date Purged: 7 114 10                                                           |             |
| Reference Point (surveyor's notch, etc.): hppplcus                          | Purge Time (from/to: 0956-1015                                                  |             |
| Date/Time Sampled: 7 1~1 10 10'2.0                                          |                                                                                 |             |
| Purge Volume Calculation: ( $\pi^2$ h)(7.48 gal/ft³)(# Casir                | ng volumes)                                                                     |             |
| Purge Volume (gallons) for: $2'' = (0.16)(h)(\#Cv); 4'' =$                  | (0.653)(h)(#Cv); 6'' = (1.48)(h)(#Cv)                                           |             |
| Calculated Purge Volume (gallons): 10W FIVW                                 | Actual Purge Volume (gallons): <u>PO</u>                                        |             |
| WATER<br>TIME LEVEL pH COND                                                 | DO REDOX                                                                        |             |
| (2400 hr) (feet) (units) (mS/cm)                                            | (mg/L) TEMP ℃ SAL % (mv)                                                        |             |
| 0959 $ 6.91$ $803$                                                          | 7.33 17.62 high 19)                                                             |             |
| $\frac{1003}{7000} = \frac{-}{7000} \frac{0.970}{0.000} \frac{9.74}{0.000}$ | <u>f.00</u> <u>20.38</u> <u>mod</u> <u>150</u>                                  |             |
| 100 t 10.00 6.12 1500tt                                                     | <u>6.4670 21.10 light 197</u>                                                   |             |
| $\frac{101}{1015} = \frac{6.92}{700} \frac{871}{0.70}$                      | $\frac{0.16}{1.10}$ $\frac{1.15}{1.22}$ $\frac{1.15}{1.10}$ $\frac{1.15}{1.10}$ |             |
| 1015 40.11 6.92 878                                                         | (0.10 - 12)                                                                     |             |
|                                                                             |                                                                                 |             |
|                                                                             |                                                                                 |             |
|                                                                             |                                                                                 |             |
|                                                                             |                                                                                 |             |
| ······                                                                      |                                                                                 |             |
|                                                                             |                                                                                 |             |
|                                                                             |                                                                                 |             |
| · · · ·                                                                     |                                                                                 |             |
| Proto a standard stall                                                      | ina out the porte                                                               |             |
| Purge Equipment: Red; Ho, Hab , new 1 sa                                    | impling Equipment: Kedi 10 5 new du bing                                        |             |
| Laboratory: On Sile Enviro Da                                               | te Sent to Lab: 7/15/10                                                         |             |
| Chain-of-Custody (reg/no): Fie                                              | eld QC Sample Number:                                                           |             |
| Shipment Method: <u>Sampler (PP)</u> sp                                     | lit With (names[s]/organization):                                               |             |
| Well Integrity: 0)5                                                         |                                                                                 |             |
| Remarks: Pump set@ 73', Fla                                                 | w = 425  m [min]                                                                |             |
| Signature: Ronald a. Sun                                                    |                                                                                 |             |
| Decon'd pump before p                                                       | lacing in well.                                                                 |             |

#### PARAMETRIX

### Groundwater Sampling Field Data Sheet No. 2

Well #: <u>MW-1</u>Z Sample #:<u>WSP-</u>MW-12-GW-071410

|   |      |                                       |                  |                                  | • • •                                  | Deter             |                     |                                         |                           |             |
|---|------|---------------------------------------|------------------|----------------------------------|----------------------------------------|-------------------|---------------------|-----------------------------------------|---------------------------|-------------|
|   |      | Project Numbe                         | " <u>215-</u>    | 2662-00                          | ,4 .                                   |                   | <u></u>             | 10                                      |                           |             |
|   |      | Project Name:                         | WSP              | RI F3                            |                                        | Location:         | <u> </u>            |                                         |                           | · .         |
|   |      | Project Addres                        | s:               | •                                |                                        | Sampled By:       | R. <u>Simm</u>      | ons; P.                                 | Pearso                    | n           |
|   |      | Client Name:                          | WSF              | <b>)</b>                         |                                        | Purged By:        | RS P                | ?                                       |                           |             |
|   |      | Casing Diamet                         | er: 2″           | <u>X4"</u>                       |                                        | 6″                | Other               |                                         |                           |             |
|   |      | Depth to Water                        | (feet):          | 0.62                             |                                        | Purge Volum       | e Measurement I     | Method: 1L g                            | rad. y                    | 13stopwitch |
|   |      | Depth of Well (                       | feet):           | 75133                            |                                        | Date Purged:      | 7 14                | 10                                      | · /                       |             |
|   |      | Reference Poir                        | nt (surveyor's r | notch, etc.): to p               | PVC LAS                                | ด ศินrge Time (   | from/to:            | 1-1205                                  |                           |             |
|   |      | Date/Time Sam                         | pled: 71         | 4/10, 12                         | 00                                     | ,                 |                     |                                         |                           |             |
|   |      | · Purg                                | e Volume Calcu   | ulation: (πr <sup>2</sup> h)(7.4 | 8 gal/ft <sup>3</sup> )(# Cas          | ing volumes)      |                     |                                         |                           |             |
|   |      | Purge                                 | e Volume (gallo  | ons) for: 2″ = (0.1              | 6)(h)(#Cv); 4″                         | = (0.653)(h)(#Cv) | ; 6″ = (1.48)(h)(#0 | 2v)                                     |                           |             |
|   |      | Calcı                                 | lated Purge Vo   | olume (gallons):                 | low flou                               | ン Actual Purge    | Volume (gallon:     | a): <u>th</u>                           | Tablic anternation of the |             |
|   |      |                                       | WATER            | 10%0                             | 136                                    |                   |                     | turb                                    | DEDOX                     |             |
|   |      | TIME<br>(2400 hr)                     | LEVEL<br>(feet)  | pH<br>(units)                    | (mS/cm)                                | (mg/L)            | TEMP °C             | SAL %                                   | (mv)                      |             |
| Ĺ |      | -1130                                 |                  | 7.21                             | 743                                    | 6,48              | 22.76               | high                                    | 139                       | _           |
| × | 1153 | H34ph                                 | 5.000            | 7.02                             | 720                                    | 6.70              | 18.82               | mod.                                    | 136                       |             |
|   | 115  | 11383                                 | 70.73            | 7.01                             | 695                                    | 7.13              | 19.14               | low                                     | 126                       |             |
|   | 120  | 211-424                               |                  | 7.02                             | 692                                    | 6.94              | 18-84               | clear                                   | 122                       |             |
|   | 1205 | H-46                                  | 70,71            | 7.03                             | 700                                    | 7.25              | 19,39               | <u>k</u> low                            | <u> </u>                  |             |
|   | 1209 | · · · · · · · · · · · · · · · · · · · |                  |                                  |                                        |                   |                     |                                         |                           |             |
|   | /    | <b></b>                               | <u></u>          |                                  |                                        |                   | <u></u>             |                                         |                           |             |
|   |      |                                       | <u></u>          |                                  | ······································ | ·                 | ······              |                                         | <u></u>                   |             |
|   |      | ·                                     |                  | . <u></u>                        |                                        |                   |                     |                                         |                           |             |
|   |      |                                       |                  | ·····                            | <u></u> ,                              |                   |                     |                                         |                           |             |
|   |      |                                       |                  |                                  | ·                                      | <u> </u>          |                     |                                         |                           |             |
|   |      |                                       |                  |                                  | <u> </u>                               |                   |                     |                                         |                           |             |
|   |      | <b>.</b>                              |                  |                                  | ·                                      |                   | ,<br>               |                                         | <u></u>                   |             |
|   |      |                                       | <b></b>          |                                  |                                        |                   |                     | ••••••••••••••••••••••••••••••••••••••• |                           |             |
|   |      | Purge Equipm                          | ent: Redi-(      | 70, Hlabs                        | new tyl                                | ampling Equipr    | nent: Redi          | Flo 3 pur                               | de tubi                   | ng          |
|   |      | Laboratory:                           | On S             | site En                          | DYin                                   | Date Sent to Lab  | :                   | 7/15                                    | 5/10                      |             |
|   |      | Chain-of-Custo                        | ody (ves)no):    |                                  | · · · · · · · · · · · · · · · · · · ·  | ield QC Sample    | Number:             |                                         |                           |             |
|   |      | Shinment Meth                         | nod:             | c anala a                        | 1201 5                                 | solit With (name  | s[s]/organization   | ):                                      | ~                         |             |
|   |      |                                       |                  | Samper                           |                                        |                   |                     | /•                                      |                           | -<br>-      |
|   |      | Well Integrity:                       | OK               | *                                | q worg                                 | control           | proble              | mian                                    | 5-00                      | 25 min      |
|   |      | Remarks:                              | Pump             | placedo                          | 272                                    | , Flow            | = 440.              | nimin                                   |                           | away        |
|   |      | Signature:                            | Roy              | D block                          | Sim                                    |                   |                     | _                                       |                           |             |
|   | 1    | Dec                                   | onid p           | ump be                           | fore K                                 | placing           | in well             |                                         | <u></u>                   | 4           |

PARAMETRIX

- - -

| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Groundwater Sampling Field Data Sheet No. 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u> 25 - GW</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Project Number $215 - 2662 - 00^4$ Date: $7/16$ ) 10         Project Name: $33P$ $R1/F5$ Location:         Project Address:       Sampled By: $R.5$ ; MMY 9 N 3         Casing Diameter: $2^{\circ}$ $4^{\circ}$ $8^{\circ}$ Depth to Water (test): $62.491$ Purge Water Method: $14 \text{ prod.}$ Depth to Water (test): $62.491$ Purge Water Method: $14 \text{ prod.}$ $qrad.$ Depth to Water (test): $62.491$ Date Purges: $7160100$ $qrad.$ $qrad.$ Depth to Water (test): $62.491$ Date Purges Water Calculations ( $2^{\circ}N/C$ ( $2^{\circ}Sin$ )       Purge Water Calculation ( $2^{\circ}N/C$ ( $2^{\circ}Sin$ ) $Purge Vater Calculation (2^{\circ}N/C (2^{\circ}Sin)       Purge Vater Calculation (2^{\circ}N/C (2^{\circ}Sin)       Virge Time (from/foc)         Calculated Purge Vature Calculation (2^{\circ}N/C (2^{\circ}Sin)       Purge Vater Calculation (2^{\circ}N/C (2^{\circ}Sin)       Virge Time (from/foc) Time V Virge Time V         Calculated Purge Vature (gations) for: 2^{\circ} (2^{\circ}Inf) Cond N Virge Time V Virge Time V Virge Time V         Calculated Purge Vature (gations) for: 2^{\circ}Inf Iif O Virge Time V Virge Vater Sin Virge Vater Sin Virge Vater Sin Virge Vater Sin Virge Vate$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Well #: $\underline{W} W = 5$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |
| $ \begin{array}{c} \mbox{Casing Diameter: 2' X 4' 6' 0 ther } \\ \mbox{Depth to Well (teet): 02.41 Purge Wolume Measurement Method: 11.4 red. (x) 3.540 pW/s/k/h 0.640 Reference Point (urveyor shoch, etc.): 0.50 PV/s 0.6530 (0.601 Purge Volume Calculation: (a^{rh})(7.48 gal/tr)(# Casing volumes) \\ \mbox{Purge Volume Calculation: (a^{rh})(7.48 gal/tr)(# Casing volumes) \\ \mbox{Purge Volume Calculation: (a^{rh})(7.48 gal/tr)(# Casing volumes) \\ \mbox{Purge Volume (gallons): D^{rh} \leq 0.0530 (0.00530 (0.00530) (0.00530 (0.00530) (0.00530 (0.00530) (0.00530 (0.00530 (0.00530) (0.00530 (0.00530 (0.00530) (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.00530 (0.$                                                                                                                                                                                                                                                                                                                                                                                       | Project Number:215-2662-004Date:7/16/10Project Name:WSPRI FSLocation:Project Address:Sampled By:R.SimmonsClient Name:WSPPurged By:25                                                                                                                                                                                                                                                                                                                                                                                          | · .             |
| Depth to Water (teet): $02.141$ Purge Volume (milleaurement Method: 1L $4rdd.cy$ ) $3350704364$<br>Depth of Well (teet): $96.87$ Date Purge Time (from/to: $0417 + 0439$<br>Date Purge Volume Calculation: ( $u^{+}h$ )(7.48 galft <sup>+</sup> )(# Cassing volumes)<br>Purge Volume Calculation: ( $u^{+}h$ )(7.48 galft <sup>+</sup> )(# Cassing volumes)<br>Purge Volume (galions) for: $2^{+} = (0.653)(h/(602); 6^{+} = (1.48)(h/(420))$<br>Calculated Purge Volume (galions): $2^{+} = 0.000$ Do $14 + 02739$<br>TIME LEVEL pH COND DO $14 + 02739$<br>$0.023$ $26.641^{+}$ $1.227$ $1749$ $7.167$ $20.91$ mod $51$<br>$0923$ $26.641^{+}$ $1.227$ $1749$ $7.167$ $20.91$ mod $51$<br>$0923$ $26.641^{+}$ $1.227$ $1749$ $7.10$ $18,20$ $4$ $43$<br>$0923$ $26.641^{+}$ $1.227$ $1749$ $7.10$ $18,20$ $4$ $43$<br>$0923$ $26.641^{+}$ $1.227$ $1749$ $7.10$ $18,20$ $4$ $43$<br>$0933$ $4.95$ $172^{-}$ $6.76$ $21.860$ $4$ $1004$<br>$3933$ $4.95$ $172^{-}$ $6.76$ $21.860$ $4$ $1004$<br>3933 $4.95$ $173$ $4.60$ $22.52$ $4$ $1111Laboratory: 0n 5i k Enviring Date Sont to Lab: 7177 100^{-}Field QC Sample Number:Shipment Method: 54 Mp \log c (RS) Split With (names[s]organization):Well Integrity: 0KRemarks: purpe placed @ 966 + Flow = 370 which m. A sampling Equipment: 1004 m. A signature: 1004 m m m m m m m m m m$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Casing Diameter: 2" X 4" 6" Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ~ . I.N.        |
| Purge Volume Calculation: ( $\pi^{-1}$ )(7.48 gall*)( $\#$ Casing volumes)<br>Purge Volume (gallons) for: $2^{*} = (0.16)(h)(\# Cv); 6^{*} = (1.48)(h)(\# C$ | Depth to Water (feet): $02.91$ Purge Volume Measurement Method: $12.94ad.cy$ $3.366$ Depth of Well (feet): $66.87$ Date Purged: $7.1610$ Reference Point (surveyor's notch, etc.): $10.74cd.cy$ $9.366$ Date/Time Sampled: $7.1610$ $09.39$                                                                                                                                                                                                                                                                                   | pwaten          |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$<br>Purge Volume (gallons) for: $2'' = (0.16)(h)(\# \text{Cv}); 4'' = (0.653)(h)(\# \text{Cv}); 6'' = (1.48)(h)(\# \text{Cv})$<br>Calculated Purge Volume (gallons): $10 \text{ cm}$ C 10 Vactual Purge Volume (gallons): $72 \text{ cm}$                                                                                                                                                                                            | s               |
| Purge Equipment: Redi Flow, Hlab 3 new Fubing<br>Sampling Equipment: Redi Flov Purge Fub ing<br>Laboratory: On Sike Enviro Date Sent to Lab: 7/17/10<br>Chain-of-Custody (Veg/no): Field QC Sample Number:<br>Shipment Method: Sampler (RS) Split With (names[s]/organization):<br>Well Integrity: OK<br>Remarks: pump placed @ 96 Flow = 370 ml min<br>Signature: Ronald Q. Sim                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TIME       LEVEL       pH       COND       DO       Vis       REDOX         (2400 hr)       (feet)       (units)       (mS/cm)       (mg/L)       TEMP °C       SAL%-       (mv) $091G$ $ 7.43$ $189$ $7.67$ $20.19$ mod $51$ $0923$ $85.911$ $7.27$ $179$ $7.10$ $18.20$ $4.3$ $63$ $0927$ $86.31$ $7.02$ $174$ $6.92$ $19.95$ $51$ $63$ $0931$ $ 7.13$ $172$ $6.94$ $21.10$ $4.87$ $87$ $0933$ $6.95$ $172$ $6.76$ $21.86$ $4$ $104$ $0939$ $4.95$ $173$ $4.60$ $22.52$ $4$ $111$ $        0939$ $               0939$ $ -$ |                 |
| Laboratory: $On SiREnviro$ Date Sent to Lab: $7/17/10$ Chain-of-Custody (ves/no):       Field QC Sample Number: $-$ Shipment Method:       Sampler (RS)       Split With (names[s]/organization): $-$ Well Integrity: $OK$ Remarks: $pump placed @ AG / Flow = 370 ml m; n$ Signature: $Ponolal Q. Sime   $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Purge Equipment: Redi Flow, Hlab & new Fubing Equipment: Redi - Flo & Redi Fubing                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |
| Well Integrity: OK<br>Remarks: pump placed @ 96 , Flow = 370 ml min<br>Signature: Ronald Q. Sime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Laboratory: $On 5iR EnviroDate Sent to Lab:7/17/10Chain-of-Custody (veg/no):Field QC Sample Number:-Shipment Method:5ampler(R5)Split With (names[s]/organization):-$                                                                                                                                                                                                                                                                                                                                                          |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Well Integrity: OK<br>Remarks: pump placed @ 96, Flow = 370 ml min<br>Signature: Ronald Q. Sime                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |

### Groundwater Sampling Field Data Sheet No. 2

| Well #: WSP-XX-0                                                                                         | 6-UN |
|----------------------------------------------------------------------------------------------------------|------|
| Sample #: <u>MW</u> -6                                                                                   |      |
| Project Number: 215 - 2662 - 004 Date: 716 10                                                            |      |
| Project Name: WSP RILFS Location:                                                                        |      |
| Project Address: Sampled By: R. SimmonS                                                                  |      |
| Client Name: WSP Purged By: RS                                                                           |      |
| Casing Diameter: 2" X 4" 6" Other                                                                        |      |
| Depth to Water (feet): 24.19 Purge Volume Measurement Method: 12 9 rad cy 3 5 top We                     | itch |
| Depth of Well (feet): 32,93 Date Purged: 7/16/10                                                         |      |
| Reference Point (surveyor's notch, etc.): LOP PNC (as) Purge Time (from/to: 1151-1210                    |      |
| Date/Time Sampled: 7/16/10, 1215                                                                         |      |
| Purge Volume Calculation: (π <sup>2</sup> h)(7.48 gal/ft³)(# Casing volumes)                             |      |
| Purge Volume (gallons) for: $2'' = (0.16)(h)(\#Cv)$ ; $4'' = (0.653)(h)(\#Cv)$ ; $6'' = (1.48)(h)(\#Cv)$ |      |
| Calculated Purge Volume (gallons): 100 Flow Actual Purge Volume (gallons): NTL                           |      |
| WATER キャック<br>TIME LEVEL pH COND DO Vンン BEDOX                                                            |      |
| (2400 hr) (feet) (units) (mS/cm) (mg/L) TEMP °C <del>SAL %</del> (mv)                                    |      |
| 153 - 6.48 296 0.45 15.87 high -35                                                                       |      |
| 1157 24.33 6,09 299 0.26 15.94 mostight 2                                                                | •    |
| 1201 24.33 6.07 299 0.20 16.14 Clear 3                                                                   |      |
| 1205 - 6.00 299 0.15 16.00 1 10                                                                          |      |
| 1240 $24.33$ $5.99$ $298$ $0.14$ $16.03$ $4$ $13$                                                        |      |
|                                                                                                          |      |
|                                                                                                          |      |
| · · · · · · · · · · · · · · · · · · ·                                                                    |      |
|                                                                                                          |      |
|                                                                                                          |      |
|                                                                                                          |      |
|                                                                                                          |      |
|                                                                                                          |      |
|                                                                                                          |      |
| Purge Equipment:                                                                                         |      |
| Laboratory: On Site EnvironDate Sent to Lab: 7/17/10                                                     |      |
| Chain-of-Custody (yes/no): Field QC Sample Number:                                                       |      |
| Shipment Method: <u>Sampler (,RS)</u> Split With (names[s]/organization):                                |      |
| Well Integrity: OK, no sign of floating ovoduct                                                          |      |
| Remarks: Pump decon'd before decine at 30' Flow =3 80 ml                                                 | min. |
| Signature: Ronald a. S'm                                                                                 |      |
| Deconid pump before placing in this well                                                                 |      |

Page <u>1</u> of <u>1</u>

2

nilia'

58.04

Groundwater Sampling Field Data Sheet No. 2 Well #: MW-7 Sample #: <u>MW</u> - 7 \* 10 7 29 **Project Number:** 215-2662-004 Date: Project Name: Location: IN SP **Project Address:** Sampled By: Simmons icon Purged By: **Client Name:** WSP Same 2″ X Other **Casing Diameter:** ″۵ 6" Depth to Water (feet):X 58.04 Purge Volume Measurement Method: 59, bucket 59.96 Depth of Well (feet): Date Purged: 29/10 Reference Point (surveyor's notch, etc.): 4 pvC cost m Purge Time (from/to: 1015 - 1055 Date/Time Sampled: 7129/10 055 Purge Volume Calculation:  $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$ Purge Volume (galions) for: 2'' = (0.16)(h)(#Cv); 4'' = (0.653)(h)(#Cv); 6'' = (1.48)(h)(#Cv)59. Calculated Purge Volume (gallons): \_ Actual Purge Volume (gallons): \_\_\_\_ WATER TIME COND DO REDOX LEVEL pН TEMP °C (2400 hr) (feet) (units) (mS/cm) (mg/L)SAL % (mv) Checked recharge by measuring 58.03 DTW 1015 bet bailings. Recharge looks 1020 58.03 ween then sampled G 000. 59. Bai ed. w Measured bailer, <u>Field</u> parameters of bailing before Sampling comp 1012 Q 566 6.26 17.50 1034 <u>58.0</u>3 6.88 200 bailer Purge Equipment: PE bailer Tefton Sampling Equipment: On Sik Enviradate Sent to Lab: Laboratory: 7130 0 Chain-of-Custody (yes/no): Field QC Sample Number: Sampler R5 Split With (names[s]/organization): Shipment Method: OK Well Integrity: \* DTW shallow to sample 7 10 Remarks: 57.9 16 100 Was a. on Redi-Flo. w1 pump. Punced Signature: and W bai \* should have been labeled wsp-XX-07-GW Page <u>1</u> of <u>1</u>

| Groundwater Sampling Field | Data | Sheet | No. | 2 |
|----------------------------|------|-------|-----|---|
|----------------------------|------|-------|-----|---|

| Sample #: $MW^{-1}$ Project Name: $WSP$ $Q1$ $F5$ Location:         Project Address:       Sample #: $A^{-1}$ $Q1$ $P5$ Client Name: $WSP$ $Q1$ $F5$ Location:         Client Name: $WSP$ $Q1$ $F5$ Location: $R^{-1}$ Casing Diameter: $2^{-1}$ $4^{-1}$ $6^{-1}$ Other $R^{-1}$ Depth to Water (feet): $A^{-1}$ $6^{-1}$ Other $R^{-1}$ $R^{-$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Number: $2/5 - 2/6/2 - 004$ Date: $7/29/10$<br>Project Name: $USP$ R1 F5 Location: Sampled By: $R5$<br>Client Name: $USP$ Purged By: $R5$<br>Casing Diameter: $2"$ $A''$ $e''$ Other<br>Depth to Water (feet): $7/2.80$ Purge Volume Measurement Method: $5q$ , buck as the Purged in $7/29/10$<br>Reference Point (surveyor's notch, etc.): hop PVC Lassing Purge Time (from/to: $1110 - 1200$<br>Date Purge Volume Calculation: $(\pi^2h)(7.48 gal/ft)(# Casing volumes)$<br>Purge Volume (gallons) for: $2" = (0.18)(h)(#CV); 6" = (1.48)(h)(#CV)$<br>Calculated Purge Volume (gallons): $-5$<br>TIME LEVEL pH COND D0<br>(feet) (units) (mS/cm) (mg/L) TEMP °C SAL % (mV)<br>12205 $92.80$ $-7$ $-7$ $-7$ $-7$ $-7$ $-7$ $-7$ $-7$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Project Name: $WSP RIPS$ Location:<br>Sampled By: $RSP$ Purged By: $RS$<br>Caling Diameter: $2'' X 4'' 6'' 0$ ther<br>Depth to Water (feet): $Y 92.80$ Purge Volume Measurement Method: $5q.$ bucches<br>Depth of Well (feet): $94.88$ Date Purged: $7/29/10$<br>Reference Point (surveyor's notch, etc.): $10p PVC$ assime yournes)<br>Purge Volume Calculation: $(m^2)n/7.48$ gal/ft <sup>2</sup> )(# Casing volumes)<br>Purge Volume (gallons): $-$ Actual Purge Volume (gallons): $-5$<br>TIME LEVEL pH COND DO<br>12208 92.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Project Address:       Sampled By:       ICon Stimmond         Client Name: $WSP$ Purged By:       RS         Casing Diameter:       2" $A$ 4"6"R       RS         Depth to Water (feet): $A$ 280       Purge Volume Measurement Method:       Sq. bucches         Depth to Water (feet): $A$ 4"6"6"0" Date Purge Volume Measurement Method:       Sq. bucches         Depth to Water (feet): $A$ 4"6"0" PVC 41" apurge time (from/to:       1110 - 12.00         Date/Time Sampled: $7/2.9/10$ 12-10       Purge Volume Calculation: ( $\pi c^n$ h)(7.48 gal/ft <sup>2</sup> )(# Casing volumes)         Purge Volume Calculation:       ( $\pi c^n$ h)(7.48 gal/ft <sup>2</sup> )(# Casing volumes)       Purge Volume (gallons) for: 2" = (0.616)(h/#CV); 4" = (0.653)(h/#CV); 6" = (1.48)(h)(#CV)         Calculated Purge Volume (gallons):      Actual Purge Volume (gallons): $M = 1$ TIME       LEVEL       PH       COND       DO         (2400 hr)       (feet)       (units)       (mS/cm)       (mg/L)       TEMP "C       SAL %       (mv)         12.13 $97.80$ $7.15$ $554$ $7.62$ 10.21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Criefin Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Casing Diameter:       2" $\land$ 4"6"Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Depth to Water (feet): $\cancel{42.80}$ Purge Volume Measurement Method: $5q$ , $buche         Depth of Well (feet):       \cancel{44.88}       Date Purged:       7/29/10         Reference Point (surveyor's notch, etc.):       \boxed{op} PVC (asing Purge Time (from/to: 110 - 12.00         Date/Time Sampled:       7/29/10 120 - 12.00         Purge Volume Calculation:       (\pi^2h)(7.48 gal/ft^3)(# Casing volumes)       Purge Volume (gallons) for: 2^{\prime\prime} = (0.16)(h)(\#Cv); 6^{\prime\prime} = (1.48)(h)(\#Cv)         Calculated Purge Volume (gallons):       -^{\prime\prime}       Actual Purge Volume (gallons):       -^{\prime\prime}         TIME       USEVEL       pH       COND       DO       REDOX         (2400 hr)       (feet)       (units)       (ms/cm)       mg/L)       TEMP °C       SAL %       (mv)         12.13       9/2.80 7.15 554 7.62 18.61 = 210 $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Depth of Well (feet): $94, 88$ Date Purged: $7/29/10$ Reference Point (surveyor's notch, etc.): $p PVC 4as: a Purge Time (from/to:       110 - 12.00         Date/Time Sampled:       7/29/10, 12-10       Purge Volume Calculation: (\pi^2h)(7.48 gal/t^3)(\# Casing volumes)         Purge Volume (gallons) for:       2^{*} = (0.16)(h)(\#Cv); 4^{*} = (0.653)(h)(\#Cv); 6^{*} = (1.48)(h)(\#Cv)       Calculated Purge Volume (gallons):       \sim - 5         TIME       LEVEL       pH       COND       DO       REDOX         (2400 hr)       (feet)       (units)       (mS/cm)       (mg/L)       TEMP °C       SAL %       (mv)         12.13       92.80 7.15 554 7.62 18.6 = 210 $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Reference Point (surveyor's notch, etc.): $\frac{1}{200} PVC colspan="2">PVC colspan="2" colspan="$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Date/Time Sampled: $7/2.9$ $10, 12.0$ Purge Volume Calculation: $(m^2h)(7.48 gal/ft^3)(\# Casing volumes)$ Purge Volume (gallons) for: $2^n = (0.16)(h)(\#CV); 4^n = (0.653)(h)(\#CV); 6^n = (1.48)(h)(\#CV)$ Calculated Purge Volume (gallons): $\_$ MATER       pH       COND       DO         (2400 hr)       (feet)       (units)       (ms/cm)       (mg/L)         TEMP °C       SAL %       (mv)         12.13 $92.80$ $\overline{7.15}$ $55.9$ $\overline{7.82}$ $10.6$ $\overline{7.10}$ 12.13 $92.80$ $\overline{7.15}$ $55.9$ $\overline{7.82}$ $10.6$ $\overline{9.6}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Purge Volume Calculation: $(\pi^{2}h)(7.48 \text{ gal/ft}^{3})(\# \text{ Casing volumes})$<br>Purge Volume (gallons) for: 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>Calculated Purge Volume (gallons): $-\frac{7}{5}$<br>TIME LEVEL pH COND DO (mg/L) TEMP °C SAL % (mv)<br>1203999999999999999999999999999999999999                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Volume (gallons) for: $2^{\prime\prime} = (0.653)(h)(\#Cv); 6^{\prime\prime} = (1.48)(h)(\#Cv); 6^{\prime\prime} = (1.48)$ |
| Actual Purge Volume (gallons): $N - 5$ WATER<br>LEVEL       pH<br>(units)       COND<br>(mS/cm)       DO<br>(mg/L)       TEMP °C       SAL %       REDOX<br>(mv)         12.13       92.80       7.15       554       7.82       18.61       -       2.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| WATER<br>(2400 hr)       WATER<br>LEVEL<br>(feet)       PH<br>(units)       COND<br>(mS/cm)       DO<br>(mg/L)       TEMP °C       SAL %<br>(mv)         12.13       92.80 $\overline{7.15}$ $\overline{554}$ $\overline{7.82}$ $18.61$ $$ $$ 12.13       92.80 $\overline{7.15}$ $\overline{554}$ $\overline{7.82}$ $18.61$ $$ $$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1208 $47.60$ $7.15$ $554$ $7.82$ $18.81$ $ 210$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1213 $47.100$ $7.15$ $554$ $47.62$ $18.61$ $ 210$ $18.61$ $ 210$ $  210$ $18.61$ $ 210$ $  210$ $18.61$ $                                                                          -$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer<br>Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer<br>Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Purge Equipment: PE bailer Sampling Equipment: Teflon bailer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Laboratory: On Site EnviroDate Sent to Lab: 7/30/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Chain-of-Custody (yes)ho): Field QC Sample Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Shipment Method: 54 moles (RS) Split With (names[s]/organization):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Well Integrity:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remarks: * DTW was 92.69 on 7/16/10.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Signature: 12 mald Q. Sim                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| t should have been labeled WSP-XX-08-GW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



### **Groundwater Sampling Field Data Sheet**

| Project Nun<br>Project Nan<br>Project Add<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | nber 215-20<br>RI/FS<br>Iress 1313<br>Walls<br>e WA S                                            | 562-004 AN<br>WA State F<br>N 13 14 Av<br>Walla W<br>tate Dept. 0      | 11/06P<br>Penitentiary<br>A <u>W362</u><br>f Corrections                        | Date<br>Loca<br>Samj<br>Purg                                                         | ation<br>pled By<br>ged By                                 | Mike Baxte<br>(HWA)<br>Same as ab                            | /LOVO<br>L<br>er (PMX)/I<br>pove.                                            | Pete Pearson       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------|--------------------|--|
| Casing Diar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Casing Diameter: 2" 4" 6" Other                                                                  |                                                                        |                                                                                 |                                                                                      |                                                            |                                                              |                                                                              |                    |  |
| Depth to Water (feet) $\frac{13.63}{15.6}$ Purge Vol. Meas.Method Grad cyl & stop watchDepth of Well (feet) $\frac{13.63}{15.6}$ Date Purged $\frac{10/15/100}{110.0}$ Reference Point (surveyors notch/etc) $\overline{Trp} = CachelucPurge Time (from/to)\frac{110.0}{110.0}Date/Time Sampled\frac{10/15/100}{12:00}\frac{110.0}{12:00}\frac{110.0}{110.0}Purge Volume Calculation: (\pi r^2h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)$ Calculated Purge Volume (gallons) |                                                                                                  |                                                                        |                                                                                 |                                                                                      |                                                            |                                                              |                                                                              |                    |  |
| TIME<br>(2400 hr)<br><u>1310</u><br><u>1110</u><br><u>1120</u><br><u>1130</u><br><u>1130</u><br><u>1134</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | WATER<br>LEVEL<br>(feet)<br>73.65<br>73.69<br>73.66<br>73.67<br>73.66<br>73.66<br>73.66<br>73.66 | pH<br>(units)<br>± 0.1<br>6.90<br>6.90<br>6.90<br>6.90<br>6.90<br>6.90 | COND<br>(mS/cm)<br>± 3%<br>53.9<br>51.5<br>51.2<br>51.7<br>51.7<br>55.0<br>55.9 | DO<br>(mg/L)<br>±10%<br>6.79<br>6.74<br>6.74<br>6.74<br>6.70<br>6.92<br>7.00<br>7.01 | TEMP<br>°C<br>13.7<br>15.1<br>17.2<br>18.2<br>18.5<br>18.5 | TURB.<br>±10%<br>21000<br>572-<br>279<br>194<br>162-<br>99.1 | ORP<br>(mV)<br>±10mV<br>277<br>156<br>147<br>147<br>147<br>147<br>154<br>154 | CUM. VOL.<br>(gal) |  |
| Purge Equip                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | oment (                                                                                          | Grundfos Re                                                            | eadyflow 2                                                                      | Sam                                                                                  | pling Equ                                                  | ipment                                                       | Grundfos                                                                     | Readyflow 2        |  |

| 0 1 1                                           |                                             | · · · · · ·                                                                    |                  |
|-------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------|------------------|
| Laboratory<br>Chain-of-Custod<br>Shipment Metho | OnSite Environmental<br>y (yes/no) YES<br>d | Date Sent to Lab<br>Field QC Sample Number<br>Split with (name(s)/organization | 0/26/2010<br>on) |
| Well Integrity<br>Remarks<br>Signature          | Oh- locked and capped.<br>Pump/set it to'   | Page                                                                           | of               |

#### Well #: <u>MW-2</u> Sample #: <u>WSV - MW - 02-6W - 10250</u>

### **Groundwater Sampling Field Data Sheet**

| P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |               |                                |                         |             |                  |                      |              |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------|--------------------------------|-------------------------|-------------|------------------|----------------------|--------------|--|--|
| Project Nu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | mber 215-2                                        | 662-004 AN    | /11/06P                        | Date                    | ;           | 10/25/26         | 0                    |              |  |  |
| Project Na                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Project Name RI/FS WA State Penitentiary Location |               |                                |                         |             |                  |                      |              |  |  |
| Project Ad                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | dress 1313                                        | N-18HAN       | v.                             | Sam                     | pled By     | Mike Baxte       | er (PMX)/I           | Pete Pearson |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1 And                                             | in Wallia V   | 11- 94362                      |                         |             | (HWA)            |                      |              |  |  |
| Client Nam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ne WAS                                            | tate Dept. o  | f Corrections                  | Purg                    | ged By      | Same as ab       | ove.                 |              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                   |               |                                |                         | -           |                  |                      |              |  |  |
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | motor: ?"                                         |               | 6"                             | Oth                     | )or         |                  |                      |              |  |  |
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   | <u>~</u> 4    | 0                              |                         |             |                  |                      |              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                   |               |                                |                         |             |                  |                      |              |  |  |
| Depth to W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ater (feet)                                       | 45.04         |                                | Purg                    | e Vol. M    | eas.Method       | Grad cyl 8           | stop watch   |  |  |
| Depth of W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | /ell (feet)                                       | 50.15         |                                | Date                    | Purged      |                  | 10/25/201            | 0            |  |  |
| Reference I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Point (survey                                     | ors notch/et  | c) Tono of case                | Gine Purg               | e Time (f   | from/to)         | 1224 -               | 360          |  |  |
| Date/Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sampled                                           | 10/25/2010    | 1300                           |                         | Elow =      | 300 ml/m         | M                    |              |  |  |
| Provide the second seco |                                                   |               |                                |                         |             |                  |                      |              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                                                 |               |                                |                         |             |                  |                      |              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Purge Volum                                       | e Calculatio  | n: $(\pi r^2 h)(7.48)$         | $gal/ft^{\circ})(\# C)$ | asing vo    | lumes)           | $c_{2}^{2} = (1.40)$ |              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Purge Volum                                       | e (gallons) 1 | or $2^{\prime\prime} = (0.16)$ | (n)(#CV); 4             | F' = (0.65) | $3)(n)(\pi CV);$ | 6'' = (1.48)         | )(n)(#CV)    |  |  |
| L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   | rge volume    | e (ganons)                     | I                       | Actual Pu   | rge volume       | (ganons)             |              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                   |               |                                |                         |             |                  |                      |              |  |  |
| TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | WATER                                             | pН            | COND                           | DO                      | TEMP        | TURB.            | ORP                  | CUM. VOL.    |  |  |
| (2400 hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | LEVEL                                             | (units)       | (mS/cm)                        | (mg/L)                  | °C          | ±10%             | (mV)                 | (gal)        |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (feet)                                            | $\pm 0.1$     | $\pm 3\%$                      | ±10%                    |             |                  | $\pm 10 mV$          |              |  |  |
| 1232                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15.02                                             | 6.89          | 82.9                           | 8.45                    | 15.5        | 24.0             | 227                  |              |  |  |
| 1236                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 40.02                                             | 6.93          | Y3.0                           | 8.00                    | 16.8        | 13.8             | 205                  |              |  |  |
| 12.40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 45.03                                             | 6.94          | 52.9                           | Tilett                  | 17.8        | 14.2             | 1913                 |              |  |  |
| 1244                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 45.01                                             | 6.96          | 52.9                           | 8.72                    | 15.2        | 8.5              | 190                  |              |  |  |
| 1148                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 470.02                                            | 6.95          | 82.8                           | T14                     | 18.2        | 10.5             | 192                  |              |  |  |

| 1247 | 40.03 | 6.96     | 82.8 | T.77      | 18.2       | 6.6      | _19.2_      |                                              |
|------|-------|----------|------|-----------|------------|----------|-------------|----------------------------------------------|
|      |       | ······   |      |           |            |          |             |                                              |
|      | ·     | ·        | ·    | . <u></u> |            | <u> </u> |             |                                              |
| ·    |       |          |      | <u> </u>  |            |          |             | <u>.                                    </u> |
|      |       |          |      |           | ·          | <u></u>  |             |                                              |
| ·    | ·     | <u> </u> |      | <u> </u>  | . <u> </u> |          | <del></del> |                                              |
|      | ·     | ·        |      |           |            |          |             |                                              |
| ·    | ·     |          |      |           |            |          |             |                                              |
|      |       |          |      |           |            |          |             |                                              |
|      |       |          |      |           |            |          |             |                                              |

| Purge Equipment                                     | Grundfos Readyflow 2                | _ Sampling Equipment                                                | Grundfos Readyflow 2 |
|-----------------------------------------------------|-------------------------------------|---------------------------------------------------------------------|----------------------|
| Laboratory<br>Chain-of-Custody (<br>Shipment Method | OnSite Environmental<br>yes/no) YES | Date Sent to Lab<br>Field QC Sample Numl<br>Split with (name(s)/org | ber                  |
| Well Integrity<br>Remarks<br>Signature              | 2K-locked and capped                | Page                                                                | of                   |



### **Groundwater Sampling Field Data Sheet**

| Project Number<br>Project Name215-2662-004 AM1/06PProject NameRI/FS WA State PenitentiaryProject AddressIBIS N IBW AveOlient NameWalle Walle Walle Walle Opt. of Corrections |                                                                                                                                                                                                                                                                                                 |                                                                                |                                                                                 | Date                                                                           | ntion<br>pled By<br>ed By                                                                 | 10/15/12<br>Heiler<br>Mike Baxt<br>(HWA)<br>Same as al                    | 610<br>for M<br>for (PMX)/I<br>bove.                                                | Pete Pearson       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|
| Casing Diar                                                                                                                                                                  | meter: 2"                                                                                                                                                                                                                                                                                       | <u> </u>                                                                       | 6"                                                                              | Oth                                                                            | ier                                                                                       |                                                                           |                                                                                     |                    |
| Depth to Wa<br>Depth of Wa<br>Reference P<br>Date/Time S                                                                                                                     | Depth to Water (feet) $\overline{54',10}$ Purge Vol. Meas.Method Grad cyl & stop watchDepth of Well (feet) $\overline{56.45}$ Date Purged $\overline{91272010}$ Reference Point (surveyors notch/etc) $\overline{10p} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$                                    |                                                                                |                                                                                 |                                                                                |                                                                                           |                                                                           |                                                                                     |                    |
| P<br>P<br>C                                                                                                                                                                  | Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$<br>Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>Calculated Purge Volume (gallons) Actual Purge Volume (gallons)                                       |                                                                                |                                                                                 |                                                                                |                                                                                           |                                                                           |                                                                                     |                    |
| TIME<br>(2400 hr)<br>1336<br>1340<br>1344<br>1347<br>1347<br>1357<br>1357<br>1357<br>1357                                                                                    | WATER<br>LEVEL<br>(feet)<br>54.25<br>54.30<br>54.25<br>54.02<br>54.02<br>54.22<br>54.20                                                                                                                                                                                                         | pH<br>(units)<br>± 0.1<br>6.93<br>6.95<br>6.99<br>6.99<br>6.99<br>6.99<br>6.99 | COND<br>(mS/cm)<br>± 3%<br>57.9<br>77.2<br>74.6<br>71.9<br>76.4<br>(9.7<br>70.0 | DO<br>(mg/L)<br>±10%<br>9.50<br>10.0)<br>10.07<br>9.57<br>9.55<br>9.01<br>9.29 | TEMP<br>°C<br>13.9<br>16.1<br>17.3<br>17.3<br>17.4<br>17.4<br>17.4<br>18.4<br>19.3<br>4.5 | TURB.<br>±10%<br><\www.<br>6366<br>367<br>266<br>204<br>227<br>227<br>227 | ORP<br>(mV)<br>±10mV<br>274<br>215<br>195<br>195<br>192<br>177<br>160<br>166<br>165 | CUM. VOL.<br>(gal) |
| Purge Equip                                                                                                                                                                  | oment                                                                                                                                                                                                                                                                                           | Grundfos Re                                                                    | eadyflow 2                                                                      | Sam                                                                            | pling Equi                                                                                | pment                                                                     | Grundfos                                                                            | Readyflow 2        |
| Laboratory<br>Chain-of-Cu<br>Shipment N                                                                                                                                      | Purge Equipment       Orundros Readynow 2       Sampling Equipment       Orundros Readynow 2         Laboratory       OnSite Environmental       Date Sent to Lab $10/16/10$ U         Chain-of-Custody (yes/no)       YES       Field QC Sample Number       Split with (name(s)/organization) |                                                                                |                                                                                 |                                                                                |                                                                                           |                                                                           |                                                                                     |                    |

| Well Integrity<br>Remarks | OK - capped and locked |      |    |  |
|---------------------------|------------------------|------|----|--|
| Signature                 | Mump got us ob         | Page | of |  |
|                           | V W /                  | ·    |    |  |

Well #: <u>MW-1</u> Sample #: <u>VGP-MW-0(-GW-1025</u>(0

### **Groundwater Sampling Field Data Sheet**

| Project Number<br>Project Name<br>Project Address | 215-2662-004 AM1/06P<br>RI/FS WA State Penitentiary<br>13:3 N 13th Ave<br>With Wills, WA 44362 | Date<br>Location<br>Sampled By | <u>Volta 12010</u><br><u>Wey Walls Wall, WA</u><br>Mike Baxter (PMX)/Pete Pearson<br>(HWA) | AOCHI  |
|---------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------|--------|
| Client Name                                       | WA State Dept. of Corrections                                                                  | Purged By                      | Same as above.                                                                             |        |
| Casing Diameter                                   | :: 2" <u> </u>                                                                                 | Other                          |                                                                                            | ]      |
| Depth to Water (                                  | feet) GL.40                                                                                    | Purge Vol. M                   | leas.Method Grad cyl & stop watch                                                          |        |
| Depth of Well (f                                  | eet) (46.97)                                                                                   | Date Purged                    | 10/25/2010                                                                                 |        |
| Reference Point                                   | (surveyors notch/etc) Tow of casing                                                            | Purge Time (                   | from/to) 1440-1510                                                                         |        |
| Date/Time Samp                                    | led 10/25/2010 1510                                                                            | FLOWN                          | 300 mVmin                                                                                  |        |
| r                                                 |                                                                                                |                                |                                                                                            | -<br>- |

Purge Volume Calculation:  $(\pi r^2h)(7.48 \text{ gal/ft}^3)$ (# Casing volumes)Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)Calculated Purge Volume (gallons)Actual Purge Volume (gallons)

| ТІМЕ<br>(2400 hr)<br><u>1445</u><br><u>445</u> 2<br><u>445</u> 4 | WATER<br>LEVEL<br>(feet)<br>(d. 35<br>61.45 | $pH$ (units) $\pm 0.1$ $6.61$ $6.67$ $6.59$ $6.59$ | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ \hline 0.107 \\ \hline 0.104' \\ \hline 0.104'$ | DO<br>(mg/L)<br>±10%<br>9.20<br>5.50<br>5.91 | ТЕМР<br>°С<br>15.0<br>И.о<br>И.т | TURB.<br>±10%<br>44.6<br>40.9<br>38.8 | ORP<br>(mV)<br>±10mV<br>274<br>232<br>238 | CUM. VOL.<br>(gal) |
|------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------|---------------------------------------|-------------------------------------------|--------------------|
| <br>                                                             | 62.63<br>62.54                              | 6.57<br>6.57                                       | 0.104                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8.47                                         | 19.6<br>17.7                     | 49.8                                  | <u>240</u><br><u>229</u>                  |                    |
| · · · · · · · · · · · · · · · · · · ·                            | /                                           |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                              |                                  |                                       |                                           |                    |

| Purge Equipment      | Grundfos Readyflow 2 | Sampling Equipment       | Grundfos Readyflow 2 |
|----------------------|----------------------|--------------------------|----------------------|
| Laboratory           | OnSite Environmental | Date Sent to Lab         | 0/24/2010            |
| Chain-of-Custody (ye | es/no) YES           | Field QC Sample Numb     | er                   |
| Shipment Method      | Felfe Over Migrat    | Split with (name(s)/orga | nization)            |

| Well Integrity<br>Remarks | Good - locked + cupped<br>Sat pumpo ut 640 |      |    |  |
|---------------------------|--------------------------------------------|------|----|--|
| Signature                 | MA IN                                      | Page | of |  |
|                           | · / //                                     |      |    |  |

Well #: <u>MW-U</u> Sample #: <u>WSY-MW-LU-GV-10251</u>0

### **Groundwater Sampling Field Data Sheet**

| Project Num<br>Project Nam<br>Project Add<br>Client Nam                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\begin{array}{r} \text{nber}  \underline{215\text{-}26}\\ \text{ne}  \overline{\text{RI/FS}}\\ \text{lress}  \underline{1613}\\ \underline{1613}\\ \text{wall}\\ \text{e}  \overline{\text{WA}}\\ \text{Schemes}  \underline{150}\\ \text{Wall}\\ \text{WA}  \underline{150}\\ \underline{150}\\ \text{WA}  \underline{150}\\ 150$ | 562-004 AN<br>WA State F<br>1. 13th Ave<br>                                     | 11/06P<br>Penitentiary<br>A 99362<br>f Corrections                              | Date                                                                                                 | Date     10 125 12010       Location     Field weak of WEP       Sampled By     Mike Baxter (PMX)/Pete Pearson (HWA)       Purged By     Same as above. |                                                                                                   |                                                                                     |                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|--|
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | meter: 2"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u> </u>                                                                        | 6"                                                                              | Oth                                                                                                  | er                                                                                                                                                      |                                                                                                   |                                                                                     |                    |  |
| Depth to Water (feet) $(A, B)$ Purge Vol. Meas.Method Grad cyl & stop watchDepth of Well (feet) $\overline{74.97}$ Date Purge Vol. Meas.Method Grad cyl & stop watchReference Point (surveyors notch/etc) $\overline{10}\mu$ f $\overline{10}\mu$ f $\overline{10}\mu$ Date Purge Time (from/to)Date/Time Sampled $\overline{10}\mu$ f $\overline{10}\mu$ $\overline{10}\mu$ f $\overline{10}\mu$ Purge Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ft}^3)(\# Casing volumes)$ Purge (1.48)(h)(#Cu) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                 |                                                                                                      |                                                                                                                                                         |                                                                                                   |                                                                                     |                    |  |
| P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | urge Volume<br>Calculated Pu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | e (gallons) f<br>rge Volume                                                     | For $2^{"} = (0.16)$<br>(gallons)                                               | )(h)(#Cv); 4                                                                                         | " = (0.653)<br>Actual Pur                                                                                                                               | b)(h)(#Cv);<br>ge Volume                                                                          | 6" = (1.48<br>(gallons)                                                             | )(h)(#Cv)          |  |
| TIME<br>(2400 hr)<br>1850<br>1854<br>1857<br>1606<br>1606<br>1614<br>1618                                                                                                                                                                                                                                                                                                                                                                                                                               | WATER<br>LEVEL<br>(feet)<br>(9.44)<br>(9.40)<br>(9.40)<br>(9.40)<br>(9.37)<br>(9.35)<br>(9.35)<br>(9.35)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | pH<br>(units)<br>± 0.1<br>6.374<br>6.37<br>6.37<br>6.37<br>6.37<br>6.37<br>6.37 | COND<br>(mS/cm)<br>± 3%<br>95.9<br>95.4<br>95.4<br>97.4<br>94.0<br>91.3<br>97.1 | DO<br>(mg/L)<br>±10%<br>8.49<br>8.49<br>8.49<br>8.49<br>7.65<br>8.49<br>7.65<br>7.65<br>7.65<br>7.65 | TEMP<br>°C<br>W.9<br>W.9<br>17.2<br>15.5<br>15.0<br>17.0<br>20.5<br>19.2                                                                                | TURB.<br>±10%<br>740<br>740<br>751<br>123<br>074<br>074<br>074<br>074<br>074<br>074<br>074<br>074 | ORP<br>(mV)<br>±10mV<br>287<br>261<br>261<br>261<br>261<br>267<br>203<br>187<br>202 | CUM. VOL.<br>(gal) |  |
| Purge Equipment       Grundfos Readyflow 2       Sampling Equipment       Grundfos Readyflow 2         Laboratory       OnSite Environmental       Date Sent to Lab       W/24/2010         Chain-of-Custody (yes/no)       YES       Field QC Sample Number         Shipment Method       Fad Ex Overwight       Split with (name(s)/organization)                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                 |                                                                                                      |                                                                                                                                                         |                                                                                                   | Readyflow 2                                                                         |                    |  |
| Well Integr<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ity <u>Ok-</u><br>set                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Locked on<br>pump of                                                            | d copped                                                                        | n,<br>h                                                                                              | Page                                                                                                                                                    |                                                                                                   | of                                                                                  |                    |  |

á.

15

Signature

#### Well #: MW-6 Sample #: W3P-MW-06-6W-10260

### **Groundwater Sampling Field Data Sheet**

| Project Numb<br>Project Name<br>Project Addre<br>Client Name                                      | $\begin{array}{c} \text{er}  \underline{215-26}\\ \hline \text{RI/FS}\\ \hline \text{SS}  \text{I} \text{I} \text{I} \text{S}\\ \hline \text{WA} \text{S}\\ \hline \text{WA} \text{S} \end{array}$ | 562-004 AM<br>WA State F<br>N John Am<br>Walls 1<br>tate Dept. o                               | 11/06P<br>Penitentiary<br>A 41Blan<br>f Corrections                                                                    | Date<br>Loca<br>Sam                                                                                                                                         | Date10/16/1000Location13HL Are + Grud RolSampled ByMike Baxter (PMX)/Pete Pearson<br>(HWA)Purged BySame as above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                         |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Casing Diame                                                                                      | eter: 2"                                                                                                                                                                                           | <u>X_</u> 4"                                                                                   | 6"                                                                                                                     | Oth                                                                                                                                                         | ier                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                         |
| Depth to Wate<br>Depth of Well<br>Reference Poi<br>Date/Time Sa<br>Pur<br>Pur<br>Cal              | er (feet)<br>l (feet)<br>int (surveyout<br>mpled<br>ge Volume<br>ge Volume<br>culated Pu                                                                                                           | 24.<br>32.<br>ors notch/et<br>19/26/2010<br>e Calculatio<br>e (gallons) f<br>rge Volume        | $\frac{46}{87}$ c) <u>Tep of ease</u><br><b>0 530</b><br>n: (πr <sup>2</sup> h)(7.48<br>for 2" = (0.16)<br>c (gallons) | Purg<br>Date<br>ivy Purg<br>gal/ft <sup>3</sup> )(# (<br>(h)(#Cv); 4                                                                                        | e Vol. Me<br>Purged<br>te Time (fr<br>Flow = 3<br>Casing vol<br>" = (0.653<br>Actual Pur                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | eas.Method<br>com/to)<br><b>50 m[/mi</b><br>umes)<br>B)(h)(#Cv);<br>ge Volume       | $\frac{\text{Grad cyl &}}{\text{M}}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | e stop watch<br>o<br>ost54<br>)(h)(#Cv) |
| TIME<br>(2400 hr)<br>0750<br>0800<br>0804<br>0812<br>0812<br>0812<br>0812<br>0812<br>0824<br>0824 | WATER<br>LEVEL<br>(feet)<br>24.95<br>24.97<br>24.97<br>24.97<br>24.97<br>24.97<br>24.97<br>24.97<br>24.97                                                                                          | pH<br>(units)<br>± 0.1<br>6.38<br>6.59<br>6.50<br>6.50<br>6.55<br>6.55<br>6.60<br>6.60<br>6.60 | COND<br>(mS/cm)<br>± 3%<br>48.3<br>48.3<br>47.2<br>45.9<br>42.6<br>42.6<br>42.1<br>41.4<br>41.5                        | DO<br>(mg/L)<br>±10%<br><b>6.82</b><br><b>6.15</b><br><b>0.07</b><br><b>0.01</b><br><b>0.01</b><br><b>0.00</b><br><b>0.00</b><br><b>0.00</b><br><b>0.00</b> | ТЕМР<br>°C<br><u>И.0</u><br><u>И.9</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I. 6</u><br><u>I. 7</u><br><u>I. 7</u><br><u>I</u> | TURB.<br>±10%<br>656<br>234<br>88.8<br>28.6<br>49.2<br>49.2<br>49.2<br>49.2<br>49.2 | $ \begin{array}{c}       ORP \\       (mV) \\       \pm 10mV \\       \underline{98} \\       \frac{1}{10} \\       \frac{70}{70} \\       \overline{52} \\       \underline{91} \\       \underline{291} \\       \underline{291} \\       \underline{20} \\       \underline{10} \\  $ | CUM. VOL.<br>(gal)                      |
| Purge Equipm<br>Laboratory<br>Chain-of-Cust<br>Shipment Met                                       | tody (yes/n<br>thod                                                                                                                                                                                | Grundfos Re<br>DanSite Envi<br>IO) YES<br>Felfa O<br>Cappel a                                  | eadyflow 2<br>ronmental<br>mulicht                                                                                     | Sam<br>Date<br>Field<br>Split                                                                                                                               | pling Equ<br>Sent to L<br>I QC Sam<br>with (nan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ipment<br>ab<br>ple Numbe<br>ne(s)/orgar                                            | Grundfos                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Readyflow 2                             |

\\SUMNFS01\shared\clients\2662-WAStDeptofCorrections\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI Field Investigation\06P-GW-SW Sampling PMX\Blank GW Form.doc

Page

of



-181

ser qu

### **Groundwater Sampling Field Data Sheet**

| Project Num<br>Project Nan<br>Project Add<br>Client Nam                                   | nber 215-20<br>ne RI/FS<br>iress 1919<br>e WAS                                          | 562-004 AM<br>WA State F<br>N 13 th Ave<br>Wally, W<br>tate Dept. o    | 11/06P<br>Penitentiary<br>A-<br>f Corrections                                                                                                   | Date Loca Samj Purg                                                                                                                                                                                                                    | Date 10/14/2010<br>Location America Bhildre of Currice<br>Sampled By Mike Baxter (PMX)/Pete Pearso<br>(HWA)<br>Purged By Same as above. |                                                                     |                                                                                                   |                            |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------|
| Casing Diar                                                                               | meter: 2"                                                                               | <u>√</u> 4"                                                            | 6"                                                                                                                                              | Oth                                                                                                                                                                                                                                    | er                                                                                                                                      |                                                                     |                                                                                                   |                            |
| Depth to W<br>Depth of W<br>Reference P<br>Date/Time S                                    | ater (feet)<br>ell (feet)<br>Point (surveyo<br>Sampled                                  | 54.<br>61.<br>ors notch/ete<br>10/26/2010                              | 33<br>14<br>:) <u>Tap et cas</u><br>1035                                                                                                        | Purg<br>Date<br>Purg<br>F                                                                                                                                                                                                              | e Vol. M<br>Purged<br>e Time (f<br>low = 21                                                                                             | eas.Method<br>rom/to)<br>50 ml/min                                  | Grad cyl &<br>\@/Lb/2Ø<br>_V@2_~V                                                                 | e stop watch<br>10<br>ወቼ 3 |
| P<br>P<br>C                                                                               | urge Volume<br>urge Volume<br>Calculated Pu                                             | e Calculation<br>e (gallons) f<br>rge Volume                           | n: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons)                                                                                           | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>                                                                                                                                                                                           | Casing vo<br>" = (0.65<br>Actual Pu                                                                                                     | lumes)<br>3)(h)(#Cv);<br>rge Volume                                 | 6" = (1.48)<br>(gallons)                                                                          | )(h)(#Cv)<br><b>3</b>      |
| TIME<br>(2400 hr)<br>1006<br>1009<br>1013<br>1017<br>1021<br>1021<br>1025<br>1029<br>1033 | WATER<br>LEVEL<br>(feet)<br>57.36<br>57.36<br>57.36<br>57.36<br>57.36<br>57.36<br>57.37 | pH<br>(units)<br>± 0.1<br>6.60<br>6.60<br>6.82<br>6.82<br>6.84<br>6.87 | COND<br>(mS/cm)<br>± 3%<br><u>41.4</u><br><u>68.6</u><br><u>66.7</u><br><u>66.7</u><br><u>66.2</u><br><u>64.8</u><br><u>64.8</u><br><u>64.8</u> | DO<br>(mg/L)<br>±10%<br><b>7.26</b><br><b>7.26</b><br><b>7.26</b><br><b>7.45</b><br><b>7.45</b><br><b>7.45</b><br><b>7.46</b><br><b>7.14</b><br><b>7.14</b><br><b>7.14</b><br><b>7.14</b><br><b>7.14</b><br><b>7.14</b><br><b>7.14</b> | TEMP<br>°C<br>12.8<br>14.1<br>14.0<br>16.0<br>15.0<br>20.0<br>20.0<br>19.9                                                              | TURB.<br>±10%<br>602_<br>345<br>120<br>44.5<br>58.2<br>42.1<br>34.6 | ORP<br>(mV)<br>±10mV<br><b>343</b><br><b>347</b><br>270<br>240<br>212<br>193<br>193<br>191<br>202 | CUM. VOL.<br>(gal)         |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M                                    | oment <u>C</u><br><u>Stody</u> (yes/n<br>lethod                                         | Grundfos Re<br>DnSite Envir<br>o) YES<br>FEAFA O                       | eadyflow 2<br>ronmental                                                                                                                         | Samj<br>Date<br>Field<br>Split                                                                                                                                                                                                         | oling Equ<br>Sent to I<br>QC Sam<br>with (na                                                                                            | iipment<br>.ab<br>nple Number<br>me(s)/organ                        | Grundfos I                                                                                        | Readyflow 2                |
| Well Integri<br>Remarks<br>Signature                                                      | ity 014-0<br>Pum<br>W/M                                                                 | company of a                                                           | nd locked<br>59'                                                                                                                                |                                                                                                                                                                                                                                        | Page                                                                                                                                    |                                                                     | of                                                                                                |                            |



**Groundwater Sampling Field Data Sheet** 

| Project Num<br>Project Nam<br>Project Add<br>Client Name<br>Casing Dian<br>Depth to Wa<br>Depth of Wa<br>Reference P<br>Date/Time S | hber 215-26<br>RI/FS<br>ress 311 M<br>WAS<br>WAS<br>Neter (feet)<br>ater (feet)<br>ell (feet)<br>oint (surveyor<br>Sampled | 562-004 AM<br>WA State F<br>1370 Ave<br>Walls Ave<br>Walls Ave<br>Walls Ave<br>Walls Ave<br>Walls Ave<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4"<br>4" | 11/06P<br>enitentiary<br>I A 99362<br>f Corrections<br>6"<br>6"<br>6"<br>6"<br>1005    | Date<br>Loca<br>Samj<br>Purg<br>Oth<br>Date  | Location       Usr         Sampled By       Mike Baxter (PMX)/Pete         Purged By       Same as above.         Other |                                                       |                                                              |                                             |  |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|--|
| TIME (2400 hr)                                                                                                                      | urge Volume<br>urge Volume<br>alculated Pu<br>WATER<br>LEVEL<br>(feet)                                                     | calculation<br>(gallons) f<br>rge Volume<br>pH<br>(units)<br>± 0.1                                                                                                                  | n: $(\pi r^{2}h)(7.48)$<br>or 2" = (0.16)<br>(gallons)<br>COND<br>(mS/cm)<br>$\pm 3\%$ | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br> | Casing vc<br>" = (0.65<br>Actual Pu<br>TEMP<br>°C                                                                       | blumes)<br>53)(h)(#Cv)<br>irge Volum<br>TURB.<br>±10% | ; $6" = (1.48)$<br>e (gallons)<br>ORP<br>(mV)<br>$\pm 10$ mV | )(h)(#Cv)<br><b>2</b><br>CUM. VOL.<br>(gal) |  |
| 1100<br>1104<br>1108<br>1108<br>1116<br>1116<br>1120                                                                                | £1.76<br>£1.67<br>£1.61<br>£1.60<br>£1.60<br>£1.61                                                                         | 6.99<br>1.01<br>1.02<br>1.02<br>1.02<br>1.01<br>1.00                                                                                                                                | 92.W<br>90.U<br>87.U<br>86.8<br>86.6<br>86.6                                           | 7.46<br>7.94<br>7.02<br>7.95<br>7.83<br>7.93 | 168<br>17.0<br>17.9<br>                                                                                                 | 21000<br>714<br>393<br>229<br>239<br>239              | 198<br> 123<br> 125<br> 12-1<br> 12-3<br> 124                |                                             |  |
|                                                                                                                                     |                                                                                                                            |                                                                                                                                                                                     |                                                                                        |                                              |                                                                                                                         | · · · · · · · · · · · · · · · · · · ·                 |                                                              |                                             |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M                                                                              | ustody (yes/r                                                                                                              | DnSite Envi<br>DnSite Envi<br>DnSite Envi<br>DnSite Envi<br>DnSite Envi<br>DnSite Envi                                                                                              | ronmental                                                                              | Sam<br>Date<br>Field<br>Split                | Sent to<br>I QC Sar<br>with (na                                                                                         | uipment<br>Lab<br>nple Numbo<br>ame(s)/orga           | Grundfos                                                     | Readyflow 2           57 2016               |  |
| Well Integri<br>Remarks<br>Signature                                                                                                | ity <u>oh-</u><br>Bet h<br>Mulflu                                                                                          | cappoch a                                                                                                                                                                           | und locked<br>74                                                                       | (                                            | Pag                                                                                                                     | e (                                                   | of                                                           |                                             |  |

Well #: MW-11 Sample #: WSF-MW-11-GW-102710

**Groundwater Sampling Field Data Sheet** 

| Project Number215-2662-004 AM1/06PProject NameRI/FS WA State PenitentiaryProject Address1313 N. 1340 AmClient NameWA State Dept. of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                    |                                                                                                                                       |                                                                                                 | tion<br>pled By<br>ed By                                       | Hite Baxte<br>(HWA)<br>Same as ab                 | er (PMX)/                                               | Pete Pearson                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------|------------------------------------|
| Casing Diamete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | er: 2"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>_</u> 4"                                                                                        | 6"                                                                                                                                    | Oth                                                                                             | er                                                             |                                                   |                                                         |                                    |
| Depth to Water<br>Depth of Well (<br>Reference Poin<br>Date/Time Sam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (feet)<br>[feet)<br>t (surveyo<br>pled<br>e Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>40.</b><br><i>76.</i><br>Drs notch/etc<br><b>10/2 4/201</b><br><b>10/2 4/201</b><br>Calculation | <b>80</b><br>19<br><sup>2)</sup> Tot of car<br><b>b</b> 439-M<br><b>b</b><br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | Purg<br>Date<br><b>ping</b> Purg<br><b>1250</b> p<br>gal/ft <sup>3</sup> )(# C                  | e Vol. Mo<br>Purged<br>e Time (f<br><b>Flow =</b><br>casing vo | eas.Method<br>rom/to)<br><b>300 w/w</b><br>lumes) | Grad cyl &<br><del> 0 &amp;6 %</del><br> 705 -  <br> N  | & stop watch<br>a - W. Wet/<br>240 |
| Purge<br>Calcu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | e Volume<br>ulated Pu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | e (gallons) fo<br>rge Volume                                                                       | or 2" = (0.16)<br>(gallons)                                                                                                           | (h)(#Cv); 4                                                                                     | = (0.65)                                                       | 3)(h)(#Cv);<br>rge Volume                         | 6" = (1.48<br>(gallons)                                 | B)(h)(#Cv)                         |
| TIME       W         (2400 hr)       L         1205       4         12.02       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.12       4         12.14       4         12.23       4         12.23       4         12.14       4         12.14       4         12.23       4         12.24       4         12.24       4         12.24       4         12.23       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       4         12.24       < | ATER<br>EVEL<br>(feet)<br>6.73<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>60.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70.75<br>70 | pH<br>(units)<br>± 0.1<br>6.58<br>6.58<br>6.58<br>6.58<br>6.58<br>6.58<br>6.58<br>6.58             | COND<br>(mS/cm)<br>± 3%<br>0.100<br>0.0099<br>0.100<br>5.100<br>0.100                                                                 | DO<br>(mg/L)<br>±10%<br><b>9.76</b><br><b>9.77</b><br><b>8.77</b><br><b>5.67</b><br><b>5.67</b> | TEMP<br>°C<br>18.3<br>20.1<br>20.6<br>21.2<br>21.2<br>22.0     | TURB.<br>±10%<br>347<br>492<br>482<br>170<br>70.3 | ORP<br>(mV)<br>±10mV<br>192<br>153<br>161<br>159<br>152 | CUM. VOL.<br>(gal)                 |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Meth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | nt <u>(</u><br>dy (yes/r<br>od _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Grundfos Re<br>DnSite Envir<br>10) YES<br>Humd delt                                                | adyflow 2<br>ronmental                                                                                                                | Sam<br>Date<br>Field<br>Split                                                                   | pling Equ<br>Sent to I<br>l QC Sam<br>with (na                 | ipment<br>Lab<br>nple Number<br>me(s)/organ       | Grundfos<br>l0/<br>r<br>ization)                        | Readyflow 2                        |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | OK-<br>Sety                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | caroped i                                                                                          | und locked<br>RK'                                                                                                                     | <u>.</u>                                                                                        | ——                                                             |                                                   | of                                                      |                                    |

Г



**Groundwater Sampling Field Data Sheet** 

|                                                                                                | nber <u>215-</u> 2                      | 2662-004 AN                                                        | 11/06P                                                                              | Date                           |                                 | 10/22/2010                                    |                          |                                       |  |
|------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------|---------------------------------|-----------------------------------------------|--------------------------|---------------------------------------|--|
| Project Nan                                                                                    | $\frac{\text{RI}}{\text{F}}$            | <u>3 WA State F</u>                                                | enitentiary                                                                         | Loca                           | tion                            | AOC                                           | # <u>2</u>               |                                       |  |
| Project Add                                                                                    | ress B13                                | N 1944 AVE                                                         | 1 anna                                                                              | Samj                           | oled By                         | Mike Baxter (PMX)/Pete Pearson<br>(HWA)       |                          |                                       |  |
| <b>au</b>                                                                                      | Wal                                     | A. Villa W                                                         | A 99362                                                                             | Þ                              | 1.5                             |                                               |                          |                                       |  |
| Client Name                                                                                    | ient Name WA State Dept. of Corrections |                                                                    |                                                                                     |                                | ed By                           | Same as ab                                    | ove.                     |                                       |  |
| Casing Diar                                                                                    | neter: 2"                               | 4"                                                                 | 6"                                                                                  | Other                          |                                 |                                               |                          |                                       |  |
|                                                                                                | <u> </u>                                | ~ .                                                                | • • • • •                                                                           |                                |                                 |                                               |                          |                                       |  |
| Depth to Wa                                                                                    | ater (feet)                             | 52                                                                 | .25                                                                                 | Purge                          | e Vol. M                        | eas.Method                                    | Grad cyl &               | stop watch                            |  |
| Depth of We                                                                                    | ell (feet)                              | 901                                                                | 95                                                                                  | Date                           | Purged                          |                                               | 10/27/80                 | 00                                    |  |
| Reference P                                                                                    | oint (surve                             | yors notch/et                                                      | c)                                                                                  | Purge                          | e Time (f                       | from/to)                                      | 1320-1                   | 410                                   |  |
| Date/Time S                                                                                    | Sampled                                 | 0/27/201                                                           | D INDO                                                                              | FI                             | ow = 3                          | 20 ml/min                                     | 1                        |                                       |  |
| P<br>P<br>C                                                                                    | urge Volun<br>urge Volun<br>alculated P | ie (gallons) f<br>urge Volume                                      | $\frac{(\pi r n)(7.48 \text{ g})}{(0.16)(1.48 \text{ g})} = (0.16)(1.48 \text{ g})$ | h)(#Cv); 4                     | " = (0.65)                      | 3)(h)(#Cv);<br>rge Volume                     | 6" = (1.48)<br>(gallons) | )(h)(#Cv)<br>                         |  |
| TIME                                                                                           | WATER                                   | pH                                                                 | COND                                                                                | DO                             | TEMP                            | TURB.                                         | ORP                      | CUM. VOL                              |  |
| (2400 hr)                                                                                      |                                         | (units)                                                            | (mS/cm)                                                                             | (mg/L)                         | °C                              | $\pm 10\%$                                    | (mV)                     | (gal)                                 |  |
| 10.41                                                                                          | (feet)                                  | ± 0.1<br>1 25                                                      | $\pm 3\%$                                                                           | ±10%                           | v. B                            | 50 1000                                       | ±10mV                    |                                       |  |
| 1245                                                                                           | - VV.08                                 | 4.20                                                               | <u></u>                                                                             | <u>[0.9]</u>                   | 10.9                            | 500                                           | 120                      |                                       |  |
| 1920                                                                                           | <u> 00.72</u>                           | 7.63                                                               | 119 2                                                                               | 7.99                           | 19.19                           |                                               |                          |                                       |  |
| 1272                                                                                           | 00.00                                   | 7.14                                                               | 42.2                                                                                | 9.92                           | 19.9                            | <u> </u>                                      | 121                      |                                       |  |
| 1.294<br>1.394                                                                                 | - 710.00<br>SC 10                       | <u> </u>                                                           | <u> </u>                                                                            | <u> </u>                       | 19.0                            | 281                                           | 190                      |                                       |  |
| 1240                                                                                           | <u></u>                                 | 7 60                                                               | 20 9                                                                                | <u> </u>                       | 19.0                            | 2.22                                          | <u> </u>                 |                                       |  |
| 1211                                                                                           | ah.06                                   | 212                                                                | 20 1                                                                                | 5 64                           | 21.2                            | 202                                           | ·                        |                                       |  |
| 1251                                                                                           | 75.20                                   | 112                                                                | 28.2                                                                                | ×.26                           | 21 2                            | 201                                           | 146                      | • • • • •                             |  |
| 1251                                                                                           | ×6 00                                   | 215                                                                | 28.0                                                                                | - 21 -                         | 21.9                            | 202                                           | 152                      |                                       |  |
| 1984                                                                                           | 00,00                                   | <u> </u>                                                           |                                                                                     | 0.27                           | 6000                            |                                               |                          |                                       |  |
|                                                                                                | ·                                       |                                                                    |                                                                                     |                                |                                 |                                               | ·                        |                                       |  |
| <u>,</u>                                                                                       |                                         | <u> </u>                                                           |                                                                                     |                                |                                 |                                               | ·                        |                                       |  |
| ······································                                                         |                                         |                                                                    |                                                                                     | <u></u>                        | •••                             |                                               | ·                        | · · · · · · · · · · · · · · · · · · · |  |
|                                                                                                |                                         |                                                                    | •••••••                                                                             |                                |                                 |                                               |                          |                                       |  |
|                                                                                                |                                         | ·                                                                  |                                                                                     |                                | . <u></u>                       |                                               | -                        |                                       |  |
| · · · · · · · · · · · · · · · · · · ·                                                          |                                         |                                                                    |                                                                                     |                                |                                 |                                               | C                        | Readyflow 2                           |  |
| Purge Equip                                                                                    | oment                                   | Grundfos Re                                                        | eadyflow 2                                                                          | Samj                           | oling Equ                       | uipment                                       | Grundios                 |                                       |  |
| Purge Equip<br>Laboratory                                                                      | oment                                   | Grundfos Re<br>OnSite Envi                                         | eadyflow 2                                                                          | Samj<br>Date                   | Sent to I                       | uipment<br>Lab                                | Grundios I               | 1572010                               |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu                                                       | oment<br>1stody (yes                    | Grundfos Re<br>OnSite Envi<br>/no) YES                             | ronmental                                                                           | Samj<br>Date<br>Field          | Sent to I<br>QC San             | uipment<br>Lab<br>nple Number                 | Grundios ]<br>           | 25/2010                               |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M                                         | oment<br>1stody (yes<br>lethod          | Grundfos Re<br>OnSite Envi<br>(no) YES                             | ronmental                                                                           | Samj<br>Date<br>Field<br>Split | Sent to I<br>QC San<br>with (na | uipment<br>Lab<br>nple Number<br>.me(s)/organ | r<br>ization)            | 25/2010                               |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M                                         | oment<br>1stody (yes<br>lethod          | Grundfos Re<br>OnSite Envi<br>/no) YES<br>Fulfx Ov                 | ronmental                                                                           | Samj<br>Date<br>Field<br>Split | Sent to I<br>QC San<br>with (na | uipment<br>Lab<br>nple Number<br>me(s)/organ  | r<br>ization)            | 2372010                               |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M<br>Well Integri                         | ity No                                  | Grundfos Re<br>OnSite Envi<br>/no) YES<br>Fulfx Ov                 | ronmental                                                                           | Samj<br>Date<br>Field<br>Split | Sent to D<br>QC San<br>with (na | uipment<br>Lab<br>nple Number<br>me(s)/organ  | rization)                | 20/2010                               |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M<br>Well Integri<br>Remarks              | oment<br>ustody (yes<br>lethod          | Grundfos Re<br>OnSite Envi<br>/no) YES<br>Fulfx Ov                 | ronmental                                                                           | Samj<br>Date<br>Field<br>Split | Sent to I<br>QC San<br>with (na | uipment<br>Lab<br>nple Number<br>me(s)/organ  | ization)                 | 25/2010                               |  |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M<br>Well Integri<br>Remarks<br>Signature | ity                                     | Grundfos Re<br>OnSite Envi<br>/no) YES<br>Fulfix Ov<br>cour or loc | ronmental                                                                           | Samj<br>Date<br>Field<br>Split | Sent to D<br>QC San<br>with (na | uipment<br>Lab<br>nple Number<br>me(s)/organ  | ization)                 | 1                                     |  |

Г

Well #: MW - 10 Sample #: WS - MW - 10 - 6W - 102710

### **Groundwater Sampling Field Data Sheet**

| Project Nur<br>Project Nan<br>Project Add<br>Client Nam<br>Casing Dian<br>Depth to W<br>Depth of W | nber 215-2<br>ne RI/FS<br>Iress 1313<br>www.<br>ee WAS<br>meter: 2"<br>fater (feet)<br>'ell (feet)              | $\frac{662-004 \text{ AN}}{\text{WA State P}}$ $\frac{1}{10000000000000000000000000000000000$                                                                                                            | 11/06P<br>Penitentiary<br>f Corrections<br>6"<br>6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Date<br>Loca<br>Sam<br>Purg<br>Oth<br><br>Purg<br>Purg<br>Date                                            | Location       Aoc. #3         Sampled By       Mike Baxter (PMX)/Pete Perecent (HWA)         Purged By       Same as above.         Other |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                         |             |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------|--|
| Reference F<br>Date/Time                                                                           | oint (survey Sampled                                                                                            | ors notch/et                                                                                                                                                                                             | c) <u>Tap of Co</u><br>1515                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | urg Purg                                                                                                  | e Time ()<br><b>bw = 3</b>                                                                                                                 | from/to)<br>Oml/mi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <u>1437-1</u><br>N                                      | 1525        |  |
| P<br>P<br>C<br>TIME                                                                                | Purge Volume<br>Purge Volume<br>Calculated Pu<br>WATER                                                          | e Calculation<br>e (gallons) fi<br>rge Volume<br>pH                                                                                                                                                      | n: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons)<br>COND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>/                                                             | Casing vo<br>" = (0.65<br>Actual Pu<br>TEMP                                                                                                | lumes)<br>i3)(h)(#Cv);<br>irge Volume<br>TURB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6" = (1.48<br>(gallons)                                 | CUM, VOL    |  |
| (2400 hr)<br><u>1447</u><br><u>1446</u><br><u>1450</u><br><u>1454</u><br><u>1455</u>               | LEVEL<br>(feet)<br><b>44.45</b><br><b>44.45</b><br><b>44.45</b><br><b>44.45</b><br><b>44.45</b><br><b>44.45</b> | $\begin{array}{c} \text{(units)} \\ \pm 0.1 \\ \textbf{(.43)} \end{array}$ | (mS/cm)<br>± 3%<br><b>FI.5</b><br><b>AI.4</b><br><b>F2.6</b><br><b>AV.2</b><br><b>AV.2</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b><br><b>AV.3</b> | (mg/L)<br>±10%<br><b>₹.75</b><br><b>₹.75</b><br><b>₹.74</b><br><b>₹.74</b><br><b>₹.74</b><br><b>₹.756</b> | °C<br>16.5<br>18.1<br>19.3<br>20.0<br>21.1                                                                                                 | ±10%<br>= 1060<br>= 1000<br>= 1000 | (mV)<br>±10mV<br>278<br>267<br>257<br>247<br>247<br>247 | (gal)       |  |
|                                                                                                    | -79.40<br>-74.46<br>-74.46<br>                                                                                  | 6.73<br>6.73<br>6.75                                                                                                                                                                                     | <br><br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <u>7.27</u><br><u>7.57</u><br><u>5.01</u>                                                                 | <u>21.9</u><br><u>22.1</u><br><u>21.9</u>                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 219<br>207<br>219                                       |             |  |
| Purge Equi                                                                                         | pment (                                                                                                         | Grundfos Re                                                                                                                                                                                              | eadyflow 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Sam                                                                                                       | pling Equ                                                                                                                                  | uipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Grundfos                                                | Readyflow 2 |  |
| Laboratory<br>Chain-of-C<br>Shipment M                                                             | ustody (yes/r<br>1ethod                                                                                         | DnSite Envi<br>10) <u>YES</u><br>Huul Idiv                                                                                                                                                               | ronmental<br><i>urce</i> ( LHWK)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Date<br>Field<br>Split                                                                                    | Sent to l<br>l QC San<br>with (na                                                                                                          | Lab<br>nple Numbe<br>me(s)/organ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | r<br>ization)                                           | 1071010     |  |
| Well Integr<br>Remarks<br>Signature                                                                | ity <u>06-</u><br>Pawy                                                                                          | copped av                                                                                                                                                                                                | 11 locked.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           | Page                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | of                                                      | i           |  |

### **Groundwater Sampling Field Data Sheet**

| Project Nur<br>Project Nar<br>Project Add<br>Client Nam                                    | nber 215-20<br>ne RI/FS<br>Iress 1912<br>e WA S                       | 662-004 AM<br>WA State F<br>Neva Ju Ave<br>W May<br>tate Dept. o       | 11/06P<br>Penitentiary<br>f Corrections                                                         | Date Loca Samj Purg                                                                                                           | Date     10/25/2010       Location     Wart of Mar Lund, wow, Yo       Sampled By     Mike Baxter (PMX)/Pete Pearson       Purged By     Same as above. |                                                                                            |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Casing Dia                                                                                 | meter: 2"                                                             | <b>X</b> _4"                                                           | 6"                                                                                              | Oth                                                                                                                           | er                                                                                                                                                      |                                                                                            |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Depth to W<br>Depth of W<br>Reference F<br>Date/Time S                                     | ater (feet)<br>'ell (feet)<br>Point (survey<br>Sampled                | 54.<br>57.1<br>ors notch/et<br>10/257201                               | 6<br>c) <u>Top of en</u><br>0 08115                                                             | Purg<br>Date<br>Livy Purg                                                                                                     | e Vol. M<br>Purged<br>e Time (1<br><b>low = 3</b>                                                                                                       | eas.Method<br>îrom/to)<br><b>'50 wl/mi</b>                                                 | Grad cyl 8<br>10/25/2<br>07448 -<br>4                                                      | t stop watch<br>SIO<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STORY<br>STOT |
| P<br>P<br>C                                                                                | Purge Volume<br>Purge Volume<br>Calculated Pu                         | e Calculatio<br>e (gallons) f<br>rge Volume                            | n: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)<br>$\phi$ (gallons)                                   | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>A                                                                                 | Casing vo<br>" = (0.65<br>Actual Pu                                                                                                                     | lumes)<br>3)(h)(#Cv);<br>rge Volume                                                        | 6" = (1.48<br>(gallons)                                                                    | )(h)(#Cv)<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| TIME<br>(2400 hr)<br>07162<br>07166<br>0760<br>0760<br>0760<br>0760<br>0760<br>0760<br>076 | WATER<br>LEVEL<br>(feet)<br>54.69<br>54.72<br>54.70<br>54.69<br>54.69 | pH<br>(units)<br>± 0.1<br>6.61<br>6.61<br>6.63<br>6.63<br>6.63<br>6.63 | COND<br>(mS/cm)<br>± 3%<br>CIII5<br>O.II4<br>O.II4<br>O.II4<br>O.II3<br>O.II3<br>O.II3<br>O.II3 | DO<br>(mg/L)<br>±10%<br><b>6.81</b><br><b>6.81</b><br><b>6.94</b><br><b>6.40</b><br><b>6.40</b><br><b>6.58</b><br><b>6.46</b> | TEMP<br>°C<br>16.1<br>16.6<br>18.9<br>17.6<br>18.3<br>18.2                                                                                              | TURB.<br>±10%<br><b>951</b><br><b>698</b><br><b>581</b><br><b>423</b><br><b>350</b><br>224 | ORP<br>(mV)<br>±10mV<br><b>300</b><br><b>204</b><br><b>206</b><br><b>198</b><br><b>199</b> | CUM. VOL.<br>(gal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Purge Equip<br>Laboratory<br>Chain-of-C<br>Shipment M                                      | pment <u>(</u><br>ustody (yes/i<br>1ethod                             | Grundfos Re<br>OnSite Envi<br>10) YES                                  | ronmental                                                                                       | Sam<br>Date<br>Field<br>Split                                                                                                 | pling Equ<br>Sent to l<br>l QC San<br>with (na                                                                                                          | uipment<br>Lab<br>1ple Numbe<br>me(s)/organ                                                | Grundfos<br>[D<br>r<br>lization)                                                           | Readyflow 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Well Integr<br>Remarks<br>Signature                                                        | ity <u>0 k-</u><br><u>307</u><br>[M]                                  | couped as                                                              | nd looked.<br>56', cull                                                                         | uted M                                                                                                                        | 6/ M60<br>Page                                                                                                                                          |                                                                                            | of                                                                                         | · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Γ

M١ Well #:\_\_\_\_\_\_ Sample #:\_\_\_\_\_\_\_ -GW-102510

**Groundwater Sampling Field Data Sheet** 

| Project Number2Project NameRProject AddressRClient NameR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-2662-004 AN<br>I/FS WA State I<br>313 N - 13 III A<br>Willie Willie<br>VA State Dept. o                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1/06P<br>Penitentiary<br>WA 49362<br>f Corrections                                                | Date<br>Loca<br>Samj                                                               | DateW/25/2010LocationSuperintendend's residence onSampled ByMike Baxter (PMX)/Pete Pearson<br>(HWA)Purged BySame as above. |                                                        |                                                                                                          |                             |   |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------|---|--|
| Casing Diameter: 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | "4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 6"                                                                                                 | Oth                                                                                | er                                                                                                                         |                                                        |                                                                                                          |                             |   |  |
| Depth to Water (fee<br>Depth of Well (feet<br>Reference Point (su<br>Date/Time Sampled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | et) <u> </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                    | Purg<br>Date<br>Purg<br>F                                                          | e Vol. Mo<br>Purged<br>e Time (f                                                                                           | eas.Method<br>rom/to)<br>But/min                       | Grad cyl &<br>\0/2872<br>0924 -                                                                          | k stop watch<br>010<br>1000 | ] |  |
| Purge Vo<br>Purge Vo<br>Calculato                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | olume Calculatio<br>olume (gallons) f<br>ed Purge Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | n: (πr <sup>2</sup> h)(7.48<br>for 2" = (0.16)<br>e (gallons)                                      | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>                                       | Casing vol<br>" = (0.65<br>Actual Put                                                                                      | lumes)<br>3)(h)(#Cv);<br>rge Volume                    | 6" = (1.48<br>(gallons)                                                                                  | )(h)(#Cv)<br>               |   |  |
| TIME       WAT         (2400 hr)       LEVI         (fee         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0991       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0913       59.6         0914       59.6         0915       59.6         0916       59.6         0917       59.6         0918       59.6< | ER pH<br>EL (units)<br>± 0.1<br>0 7.13<br>7.10<br>0 7.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1.09<br>1 | COND<br>(mS/cm)<br>± 3%<br><u>₹4.4</u><br><b>78.6</b><br><b>76.4</b><br><b>76.1</b><br><b>76.2</b> | DO<br>(mg/L)<br>±10%<br><b>9.96</b><br><b>9.91</b><br><b>10.21</b><br><b>10.25</b> | ТЕМР<br>°С<br><u>I4.2</u><br><u>I4.1</u><br><u>I5.0</u><br><u>I5.9</u><br><u>I6.0</u><br>                                  | TURB.<br>±10%<br>>1000<br>>1000<br>71000<br>903<br>693 | ORP<br>(mV)<br>±10mV<br><b>293</b><br><b>231</b><br><b>269</b><br><b>269</b><br><b>264</b><br><b>264</b> | CUM. VOL.<br>(gal)          |   |  |
| Purge Equipment<br>Laboratory<br>Chain-of-Custody (<br>Shipment Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Grundfos Ro<br>OnSite Envi<br>yes/no) YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | eadyflow 2<br>ronmental                                                                            | Samj<br>Date<br>Field<br>() Split                                                  | pling Equ<br>Sent to I<br>QC Sam<br>with (nat                                                                              | ipment<br>.ab<br>.ple Numbe<br>me(s)/organ             | Grundfos<br>(0//<br>r<br>                                                                                | Readyflow 2                 | - |  |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ok-connect                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mil secled<br>93'                                                                                  | -                                                                                  | Page                                                                                                                       |                                                        | of                                                                                                       |                             | ] |  |

Well #: <u>MW-10</u> Sample #: <u>Sample #: Sample #: Sample #: MW-10-GW-110-HD</u>

**Groundwater Sampling Field Data Sheet** 

| Project Number213Project NameRI/Project AddressClient NameW/W/                                                                                                                                                                                                                                                                                                                                                                                                                          | 5-2662-004 AM1/06P<br>FS WA State Penitentiary<br>A State Dept. of Corrections                                                                             | Date11/14/1010LocationSud/1444 JulySampled ByMike Baxter (PMX)/Pete Pearson-<br>(HWA) JulyPurged BySame as above.                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Casing Diameter: 2"                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4"6"                                                                                                                                                       | Other                                                                                                                             |
| Depth to Water (feet)<br>Depth of Well (feet)<br>Reference Point (surv<br>Date/Time Sampled                                                                                                                                                                                                                                                                                                                                                                                             | 26.17<br>48.30<br>/eyors notch/etc) Top of co<br>11/4/2010 1005                                                                                            | Purge Vol. Meas.MethodGrad cyl & stop watchDate Purged $11/4/2010$ Purge Time (from/to) $0137 - 1040$ Flow = 300 ml/min           |
| Purge Volu<br>Purge Volu<br>Calculated                                                                                                                                                                                                                                                                                                                                                                                                                                                  | time Calculation: $(\pi r^2 h)(7.48)$<br>time (gallons) for 2" = (0.16)<br>Purge Volume (gallons)                                                          | gal/ft <sup>3</sup> )(# Casing volumes)<br>(h)(#Cv); 4'' = (0.653)(h)(#Cv); 6'' = (1.48)(h)(#Cv)<br>Actual Purge Volume (gallons) |
| TIME       WATE         (2400 hr)       LEVEI         (feet)       (feet)         09440       26.53         09441       26.53         09443       26.53         0945       26.53         0945       26.55         0452       24.54         0956       24.54         0956       24.54         0956       24.54         0956       24.54         0956       24.54         0956       24.54         0956       24.54         0956       24.54         000000000000000000000000000000000000 | R       pH       COND         (units)       (mS/cm)         ± 0.1       ± 3% <b>57.55 51.3 6.05 58.6 6.12 57.5 6.14 57.5 6.14 57.5 6.14 57.5 6.14 57.5</b> | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                                             |
| Purge Equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Grundfos Readyflow 2                                                                                                                                       | Sampling Equipment Grundfos Readyflow 2                                                                                           |
| Laboratory<br>Chain-of-Custody (y<br>Shipment Method                                                                                                                                                                                                                                                                                                                                                                                                                                    | OnSite Environmental<br>es/no) YES<br>Hand delivery                                                                                                        | Date Sent to Lab       11/9/2010         Field QC Sample Number                                                                   |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                  | h - capped and locked,<br>My Soft of Stoppes                                                                                                               | Page of                                                                                                                           |

Well #: <u>MW-9</u> Sample #: <u>SLF-MW-09-GW-110</u>40

**Groundwater Sampling Field Data Sheet** 

| Project Number<br>Project Name215-<br>RI/FProject AddressClient Name                         | 2662-004 AM1/06P<br>S WA State Penitentiary<br>State Dept. of Corrections                                        | Date<br>Location<br>Sampled By<br>Purged By                      | WH/2010<br>Endlowy HE<br>Mike Baxter (PMX)/ <del>Pote Pearson</del><br>(HWA) <b>Tay Yon(Ard (WW)</b><br>Same as above. |          |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------|
| Casing Diameter: 2"                                                                          | 6"                                                                                                               | Other                                                            |                                                                                                                        |          |
| Depth to Water (feet)<br>Depth of Well (feet)<br>Reference Point (surve<br>Date/Time Sampled | See remarks below.<br>210 (historical measurement<br>yors notch/etc)<br>11/4/2010 1115                           | Purge Vol. Me<br>Date Purged<br>Purge Time (fr<br>Flow = > 2     | as.Method <u>Grad cyl &amp; stop watch</u><br><u>1/4/2010</u><br>om/to) <u>1115 - 1125</u><br>30 Winn                  |          |
| Purge Volur<br>Purge Volur<br>Calculated F                                                   | ne Calculation: $(\pi r^2 h)(7.48 \text{ gal/f})$<br>ne (gallons) for 2" = (0.16)(h)(#<br>Purge Volume (gallons) | t <sup>3</sup> )(# Casing volu<br>Cv); 4" = (0.653<br>Actual Pur | umes)<br>)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>ge Volume (gallons)                                                         |          |
| TIME WATER<br>(2400 hr) LEVEL<br>(feet)                                                      | pH COND I<br>(units) (mS/cm) (m<br>± 0.1 ± 3% ±1                                                                 | DO TEMP<br>1g/L) °C<br>10%                                       | $\begin{array}{ccc} TURB. & ORP & CUM. VOL. \\ \pm 10\% & (mV) & (gal) \\ \pm 10mV \end{array}$                        |          |
| The size of the<br>meter and collec<br>control pumps f                                       | panno 10 se and flow v<br>fictor pavameter men<br>un vate                                                        | ste was tee                                                      | No variable control to                                                                                                 |          |
|                                                                                              |                                                                                                                  |                                                                  |                                                                                                                        |          |
|                                                                                              |                                                                                                                  |                                                                  |                                                                                                                        |          |
|                                                                                              | <u>2</u>                                                                                                         |                                                                  |                                                                                                                        |          |
| Purge Equipment                                                                              | Grundfos Readyflow 2                                                                                             | Sampling Equi                                                    | ipment Grundfos Readyflow 2                                                                                            |          |
| Laboratory<br>Chain-of-Custody (yes<br>Shipment Method                                       | OnSite Environmental<br>s/no) YES<br>Mul delivery                                                                | Date Sent to L<br>Field QC Sam<br>Split with (nan                | ab                                                                                                                     |          |
| Well Integrity<br>Remarks<br>Signature                                                       | - capped and locked<br>What measure 10TW due to                                                                  | o size of op<br>Page                                             | ening on well pump. Nuter level                                                                                        | protect. |



**Groundwater Sampling Field Data Sheet** 

| Project Number<br>Project Name215-2662-004 AM1/06P<br>RI/FS WA State PenitentiaryProject AddressClient NameWA State Dept. of Corrections |                                                                                          |                                                                          | Date Date Loca Samj Purg                                                                   | tion<br>pled By<br>ed By                                                         | WE JOO<br>Sudawy LE<br>Mike Baxter (PMX)/Peter Pearson<br>(HWA) Dennis Kaluest an (W/)<br>Same as above. |                                                          |                                                                |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------|---------------------------------------|
| Casing Diar                                                                                                                              | meter: 2"                                                                                | 4"                                                                       | 6"                                                                                         | Oth                                                                              | er                                                                                                       |                                                          |                                                                |                                       |
| Depth to Wa<br>Depth of W<br>Reference P<br>Date/Time S                                                                                  | ater (feet)<br>ell (feet)<br>Point (survey<br>Sampled                                    | <b>43.7</b><br>185 <del>151 (</del><br>ors notch/et<br>W[5]2010          | 12<br>historical)<br>C) Top of cos                                                         | Purg<br>Date<br>Date<br>Purg                                                     | e Vol. Mo<br>Purged<br>e Time (f                                                                         | eas.Method<br>rom/to)<br>ml/mir                          | Grad cyl &<br>il /17/201<br>il 1847 – j<br>i                   | è stop watch<br>O<br>ር ር ር ዮ የ        |
| P<br>P<br>C                                                                                                                              | urge Volum<br>urge Volum<br>Calculated Pu                                                | e Calculatio<br>e (gallons) f<br>irge Volume                             | n: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)<br>(gallons)                                     | gal/ft³)(# C<br>(h)(#Cv); 4<br>                                                  | Casing vol<br>" = (0.65<br>Actual Pur                                                                    | lumes)<br>3)(h)(#Cv);<br>rge Volume                      | 6" = (1.48<br>(gallons)                                        | )(h)(#Cv)<br>                         |
| TIME<br>(2400 hr)<br>1124<br>1130<br>1130<br>1137<br>1195<br>11472                                                                       | WATER<br>LEVEL<br>(feet)<br><b>43.86</b><br><b>43.87</b><br><b>43.87</b><br><b>43.82</b> | pH<br>(units)<br>± 0.1<br>(6.62-<br>(6.62-<br>(6.65)<br>(6.65)<br>(6.65) | COND<br>(mS/cm)<br>± 3%<br>26.6<br>20.2<br>20.1<br>20.1<br>20.5<br>19.8                    | DO<br>(mg/L)<br>±10%<br><b>7.53</b><br><b>7.05</b><br><b>6.77</b><br><b>6.65</b> | TEMP<br>°C<br>13.6<br>13.6<br>13.6<br>13.7<br>13.7                                                       | TURB.<br>±10%<br>0.0<br>397<br>194<br>194<br>193<br>50.9 | ORP<br>(mV)<br>±10mV<br>233<br>224<br>224<br>224<br>224<br>217 | CUM. VOL.<br>(gal)                    |
| Purge EquipmentGrundfos Readyflow 2LaboratoryOnSite EnvironmentalChain-of-Custody (yes/no)YESShipment MethodHard delivery                |                                                                                          | Sam<br>Date<br>Fielc<br>Split                                            | Sampling Equipment<br>Date Sent to Lab<br>Field QC Sample Numb<br>Split with (name(s)/orga |                                                                                  |                                                                                                          | Grundfos Readyflow 2                                     |                                                                |                                       |
| Well Integr<br>Remarks<br>Signature                                                                                                      | ity 6K-<br>Sert<br>Mi                                                                    | Carpiped, 1<br>prainip at<br>1/4/                                        | und locked                                                                                 |                                                                                  | Page                                                                                                     | · <u> </u>                                               | of                                                             | · · · · · · · · · · · · · · · · · · · |
Well #:
 MW-1

 Sample #:
 WSP-MW-01-GW-02-02-11

### Groundwater Sampling Field Data Sheet

| Project Nur<br>Project Nan<br>Project Add<br>Client Nam<br>Casing Dian                                                                                                                                                                                   | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Date <u>1/1/1/1/</u><br>Location <u>WSP</u><br>Sampled By Mike Baxter (PMX)/Lara Linde<br>(PMX)<br>Purged By Same as above. |                                                                       |                                                                      |                                                                   |                                                                       |                                                      |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------|--------------------|
| Depth to Wa<br>Depth of Wa<br>Reference P<br>Date/Time S                                                                                                                                                                                                 | Depth to Water (feet)       101.101       Purge Vol. Meas.Method Grad cyl & stop watch         Depth of Well (feet)       101.100       Date Purge Vol. Meas.Method Grad cyl & stop watch         Reference Point (surveyors notch/etc)       Tap of Cusing       Purge Time (from/to)       21/1/201         Date/Time Sampled       1/1/101       09/16       Flow Rate (ml/min)       0706 - 09/62         Purge Volume Calculation:       (22/2)       (22/2)       (22/2)       (22/2) |                                                                                                                             |                                                                       |                                                                      |                                                                   |                                                                       |                                                      |                    |
| Purge Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$<br>Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>Calculated Purge Volume (gallons) Actual Purge Volume (gallons) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                             |                                                                       |                                                                      |                                                                   |                                                                       |                                                      |                    |
| TIME<br>(2400 hr)<br>5<br>(590)<br>090 b<br>0910<br>0917<br>0917<br>09121                                                                                                                                                                                | WATER<br>LEVEL<br>(feet)<br>54.64<br>54.64<br>54.64<br>54.62                                                                                                                                                                                                                                                                                                                                                                                                                                | pH<br>(units)<br>± 0.1<br>(                                                                                                 | COND<br>(mS/cm)<br>± 3%<br>.41<br>.32<br>1.32<br>1.32<br>1.32<br>1.32 | DO<br>(mg/L)<br>±10%<br>5.64<br>4.94<br>4.94<br>4.77<br>4.77<br>4.77 | TEMP<br>°C<br>117-978<br>116-078<br>116-057<br>116-057<br>116-057 | TURB.<br>±10%<br>©.0<br>©.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0 | ORP<br>(mV)<br>±10mV<br>121<br>79<br>70<br>61<br>150 | CUM. VOL.<br>(gal) |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M                                                                                                                                                                                                   | Purge Equipment       Grundfos Readyflow 2       Sampling Equipment       Grundfos Readyflow 2         Laboratory       OnSite Environmental       Date Sent to Lab       Image: Chain-of-Custody (yes/no)       Image: YES         Chain-of-Custody (yes/no)       YES       Field QC Sample Number       Image: YES                                                                                                                                                                       |                                                                                                                             |                                                                       |                                                                      |                                                                   |                                                                       |                                                      |                    |
| Well Integrity     Shi locked     Split with (name(s)/organization)     M/m       Well Integrity     Shi locked     Signature     Signature     Signature     Image of                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                             |                                                                       |                                                                      |                                                                   |                                                                       |                                                      |                    |

Well #:<u>MW-2</u> Sample #:<u>WSP-MW-02-GW- 04074</u>

### **Groundwater Sampling Field Data Sheet**

| Project Number $215-2662-004 \text{ AM1/06P}$ DaProject NameRI/FS WA State PenitentiaryLooProject Address1313 North 13th AvenueSatWalla Walla, WA 99362WA State Dept. of CorrectionsPutClient NameWA State Dept. of CorrectionsPutCasing Diameter: 2"4"6"Depth to Water (feet) $42.444$ PutDepth of Well (feet) $50.57$ DatReference Point (surveyors notch/etc) $F_{14.4}^{+}(42.444)$ PutDate/Time Sampled $44.444$ FloPurge Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ft}^3)(\#)$ Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$ ;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                  |                                                                                      |                                                              |                                                              | <u>H</u> <u>H</u> <u>M</u><br>Mike Baxt<br>(PMX)<br>Same as all<br>eas.Method<br>from/to)<br>//min)  | $\frac{\text{Grad cyl } \delta}{\frac{2}{4} \frac{1}{2} \frac{2}{2} \frac{1}{4} \frac{1}{2} \frac{2}{2} \frac{1}{4} \frac{1}{2} $ | Lara Linde             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Calcul<br>TIME WA<br>(2400 hr) LE<br>(fr<br>101115 142.<br>10157 | ated Purge Volume         ATER       pH         VEL       (units)         eet)       ± 0.1         b3       1.05         b3       1.05         b1       1.00         b1       1.00         b1       1.00         b2       0.00         b3       1.00         b1       1.00         b2       0.00 | e (gallons)<br>COND<br>(mS/cm)<br>± 3%<br>0.723<br>0.724<br>0.724<br>0.724<br>0.7542 | DO<br>(mg/L)<br>±10%<br>±10%<br>±357<br>₹.27<br>₹.31<br>₹.30 | Actual Pur<br>TEMP<br>°C<br>16.27<br>16.21<br>16.21<br>15.94 | rge Volume<br>TURB.<br>±10%<br><u>30.6</u><br><u>24.3</u><br><u>24.6</u><br><u>0.0</u><br><u>0.0</u> | (gallons)<br>ORP<br>(mV)<br>±10mV<br>ぷぼ<br>ぷ客<br>ほそろ<br>ぷ客<br>ほそろ<br>ぷる<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ<br>こ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <br>CUM. VOL.<br>(gal) |
| Purge Equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Grundfos Re                                                                                                                                                                                                                                                                                      | eadyflow 2                                                                           | Sam                                                          | pling Equ                                                    | ipment                                                                                               | Grundfos I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Readyflow 2            |
| Laboratory<br>Chain-of-Custody<br>Shipment Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Laboratory       OnSite Environmental       Date Sent to Lab       2.78/2014         Chain-of-Custody (yes/no)       YES       Field QC Sample Number       1/4         Shipment Method       For the sent to Lab       1/6/2014       1/6/2014                                                  |                                                                                      |                                                              |                                                              |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |
| Well Integrity       Ob locked         Remarks       Set powp at H81.         Signature       MMM    Page of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                  |                                                                                      |                                                              |                                                              |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |

 Well #:
 MW-3

 Sample #:
 WSP-MW-03-GW- 04-07-01

### **Groundwater Sampling Field Data Sheet**

| Project Number $215-2662-004 \text{ AM1/06P}$ Project NameRI/FS WA State PenitentiaryProject Address1313 North 13th AvenueWalla Walla, WA 99362Walla Walla, WA 99362Client NameWA State Dept. of CorrectionsCasing Diameter: 2" $\sqrt{4"}$ 6"Depth to Water (feet) $16.4\%$ Depth of Well (feet) $10.4\%$ Reference Point (surveyors notch/etc) $10.4\%$ Date/Time Sampled $14/1011$ Purge Volume Calculation: $(\pi r^2h)(7.48  gPurge Volume (gallons) for 2" = (0.16)(h Calculated Purge Volume (gallons) for 2" = (0.16)(h Calc$ |                                                                                                                      |                                                                                                                                                                                   |                                                                                                 | e<br>ation<br>upled By<br>ged By<br>ner<br>ve Vol. Ma<br>Purged<br>ve Time (f<br>v Rate (m)<br>Casing vol<br>" = (0.65) | <u>11712</u><br>WSP<br>Mike Baxt<br>(PMX)<br>Same as all<br>eas.Method<br>rom/to)<br>//min)<br>umes)<br>3)(h)(#Cv);<br>rea Volume | $Grad cyl \delta$ | Lara Linde<br>Lara Linde<br>k stop watch<br>134K<br>10<br>)(h)(#Cv) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| TIME     WA'       (2400 hr)     LEV       (fe     13c6       13c6     16       1314     46       1315     16       1322     70       1324     40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                 | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ \hline 0.426 \\ \hline 0.417 \\ \hline 0.915 \\ \hline 0.926 \\ \hline 0.428 \\ \hline 0.428 \\ \hline \end{array}$ | DO<br>(mg/L)<br>±10%<br><u>5.19</u><br><u>5.42</u><br><u>5.14</u><br><u>5.16</u><br><u>5.27</u> | TEMP<br>°C<br>14.45<br>14.40<br>17.42<br>14.40<br>17.42<br>10.73<br>16.60                                               | TURB.<br>±10%<br><u>141.4</u><br>303.6<br><u>314.1</u><br><u>147.6</u><br><u>48.7</u><br><u>56.55</u>                             | ORP<br>(mV)<br>±10mV<br><u>\$2</u><br><u>bt1</u><br><u>24</u><br><u>24</u><br><u>30</u><br><u>255</u>                         | CUM. VOL.<br>(gal)                                                  |
| Purge Equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Grundfos Re                                                                                                          | adyflow 2                                                                                                                                                                         | Samj                                                                                            | pling Equ                                                                                                               | ipment                                                                                                                            | Grundfos I                                                                                                                    | Readyflow 2                                                         |
| Laboratory     OnSite Environmental       Chain-of-Custody (yes/no)     YES       Shipment Method     Fale Overvis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                      |                                                                                                                                                                                   | Date<br>Field<br>Split                                                                          | Date Sent to Lab     2/3/2011       Field QC Sample Number     1/1011       Split with (name(s)/organization)     1/10  |                                                                                                                                   |                                                                                                                               |                                                                     |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Well Integrity     OV-cline it deferies, locked       Remarks     3cit pump ad to to       Signature     Image of to |                                                                                                                                                                                   |                                                                                                 |                                                                                                                         |                                                                                                                                   |                                                                                                                               |                                                                     |

 Well #:
 MW-14

 Sample #:
 WSP-MW-14-GW- of of (1)

### **Groundwater Sampling Field Data Sheet**

| Project Number215-262-004 AM1/06P<br>RI/FS WA State Penitentiary<br>1313 North 13th Avenue<br>Walla Walla, WA 99362<br>Client NameDate $\mathcal{L}[\mathcal{H}]\mathcal{L}(\mathcal{U}]$<br>WA State Dept. of CorrectionsCasing Diameter: 2" $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ Casing Diameter: 2" $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ Depth to Water (feet) $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ Depth of Well (feet) $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ Reference Point (surveyors notch/etc) $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ Date/Time Sampled $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ $\mathcal{U}$ Purge Volume Calculation: ( $\pi r^2h$ )(7.48 gal/ft³)(# Casing volumes)<br>Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#C<br>Calculated Purge Volume (gallons) $\mathcal{U}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                                                      |                                                                                                         |                                                                                                                            | Lara Linde                                                               |                        |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------|--|
| Calc          TIME       W         (2400 hr)       I         14710       0         1430       0         1434       0         1437       0         1438       0         1439       0         1437       0         1437       0         1437       0         1437       0         1437       0         1437       0         1438       0         1439       0         1439       0         1439       0         1439       0         1439       0         1439       0         1439       0         1439       0         1439       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0         1440       0 <tr< td=""><td>Pulated Pur           VATER           LEVEL           (feet)           'by H2-           'by H2-      'by H2-      'by H2-</td><td><math display="block">\begin{array}{c} \text{pH} \\ (\text{units}) \\ \pm 0.1 \\ \hline 4.01 \\ \hline 4.01 \\ \hline 0.43 \\ \hline 0.43 \\ \hline 0.591 \\ \hline 0.</math></td><td>COND<br/>(mS/cm)<br/>± 3%<br/></td><td><u>ро</u><br/>(mg/L)<br/>±10%<br/>₹.<u>Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>₹.Щ</u><br/><u>т.щ</u><br/><u>т.щ</u><br/><u>т.щ</u></td><td>Actual Pu<br/>TEMP<br/>°C<br/><u>14.47</u><br/><u>16.07</u><br/><u>16.12</u><br/><u>16.12</u><br/><u>16.12</u></td><td>rge Volume<br/>TURB.<br/>±10%<br/><u>2.01.0</u><br/><u>2.01.0</u><br/><u>3.6.9</u><br/><u>15.3</u><br/><u>15.3</u><br/><u>15.4</u></td><td>ORP<br/>(mV)         ±10mV         42         355         440         445</td><td><br/>CUM. VOL.<br/>(gal)</td></tr<> | Pulated Pur           VATER           LEVEL           (feet)           'by H2-           'by H2-      'by H2-      'by H2- | $\begin{array}{c} \text{pH} \\ (\text{units}) \\ \pm 0.1 \\ \hline 4.01 \\ \hline 4.01 \\ \hline 0.43 \\ \hline 0.43 \\ \hline 0.591 \\ \hline 0.$ | COND<br>(mS/cm)<br>± 3%<br> | <u>ро</u><br>(mg/L)<br>±10%<br>₹. <u>Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>₹.Щ</u><br><u>т.щ</u><br><u>т.щ</u><br><u>т.щ</u> | Actual Pu<br>TEMP<br>°C<br><u>14.47</u><br><u>16.07</u><br><u>16.12</u><br><u>16.12</u><br><u>16.12</u> | rge Volume<br>TURB.<br>±10%<br><u>2.01.0</u><br><u>2.01.0</u><br><u>3.6.9</u><br><u>15.3</u><br><u>15.3</u><br><u>15.4</u> | ORP<br>(mV)         ±10mV         42         355         440         445 | <br>CUM. VOL.<br>(gal) |  |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Meth<br>Well Integrity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purge Equipment       Grundfos Readyflow 2       Sampling Equipment       Grundfos Readyflow 2         Laboratory       OnSite Environmental       Date Sent to Lab       2/5/20/4         Chain-of-Custody (yes/no)       YES       Field QC Sample Number       1/4         Shipment Method       Fed Ea Overwight       Split with (name(s)/organization)       1/4         Well Integrity       Ohr show of aldburg backed       1/4       1/4                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                                                      |                                                                                                         |                                                                                                                            |                                                                          |                        |  |
| Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Remarks     Get was defined for held.       Signature     Image of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                                                      |                                                                                                         |                                                                                                                            |                                                                          |                        |  |

Г

Well #: <u>MW-13</u> Sample #: <u>WSP-MW-13-GW-0707|</u>

### **Groundwater Sampling Field Data Sheet**

| Project Name       RI/FS WA State Penitentiary         Project Address       1313 North 13th Avenue         Walla Walla, WA 99362       Walla Walla, WA 99362         Client Name       WA State Dept. of Corrections         Casing Diameter: 2" $\sqrt{4"}$ 6"       6"         Depth to Water (feet) $-\frac{146.241}{146.041}$ Depth of Well (feet) $-\frac{146.241}{146.041}$ Depth of Well (feet) $-\frac{146.241}{146.041}$ Date/Time Sampled $2/41/461$ |                                                                       |                                                                                                                                                            |                                                                                                                                                                                                                                    | Date<br>Loc:<br>Sam<br>Purg<br>Oth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | e<br>ation<br>upled By<br>ged By<br>ner<br>ge Vol. M<br>e Purged<br>ge Time (1<br>y Rate (m                                                                                       | <u>2 </u> <u>4</u> <u>/</u> <u>/</u> <u>/</u> <u>WSP</u><br>Mike Baxt<br>(PMX)<br>Same as at<br>eas.Method | Grad cyl d                                                                                               | r (PMX)/Lara Linde<br>ve.<br>irad cyl & stop watch<br>iff 2011<br>1004 - 1045<br>3ix |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|
| Pu<br>Pu<br>Ca<br>TIME<br>(2400 hr)<br>1614<br>1618<br>1622<br>1622<br>1620<br>1620                                                                                                                                                                                                                                                                                                                                                                             | water<br>Water<br>Level<br>(feet)<br>51.67<br>51.67<br>51.66<br>51.66 | the Calculation<br>the (gallons) for the pH<br>(units) $\pm 0.1$<br>$\pm 0.1$<br>$\pm 0.1$<br>4.10<br>4.10<br>4.50<br>6.50<br>6.49<br>6.49<br>6.49<br>6.49 | on: $(\pi r^{2}h)(7.48)$<br>for 2" = (0.16)<br>e (gallons)<br>COND<br>(mS/cm)<br>$\pm 3\%$<br><u>c. 400</u><br><u>c. 400</u><br><u>c. 400</u><br><u>c. 410</u><br><u>c. 440</u><br><u>c. 744</u><br><u>c. 744</u><br><u>c. 744</u> | $\begin{array}{c} gal/ft^{3})(\# (0)(\# Cv); 4)(\# Cv); 4)(\#$ | Casing vo<br>" = (0.65<br>Actual Pu<br>TEMP<br>°C<br><u>14.56</u><br><u>14.10</u><br><u>16.69</u><br><u>16.69</u><br><u>16.69</u><br><u>16.69</u><br><u>16.69</u><br><u>16.69</u> | lumes)<br>3)(h)(#Cv);<br>rge Volume<br>TURB.<br>±10%<br>243.0<br>243.0<br>243.0<br>243.0<br>243.0<br>243.0 | 6" = (1.48)<br>(gallons)<br>ORP<br>(mV)<br>$\pm 10mV$<br>HTD<br>HTD<br>HTD<br>30<br>32<br>32<br>32<br>32 | CUM. VOL.<br>(gal)                                                                   |  |
| Purge Equipr<br>Laboratory<br>Chain-of-Cus<br>Shipment Me<br>Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                             | nent<br>stody (yes/<br>ethod<br>y <u>OK</u>                           | Grundfos Ra<br>OnSite Envi<br>no) YES<br>FedEa OV<br>Clean of<br>gamp of<br>AMAAA                                                                          | eadyflow 2<br>ronmental<br>www.H<br>kelwis, lock                                                                                                                                                                                   | SamDate<br>Date<br>Split                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | pling Equ<br>Sent to I<br>I QC Sam<br>with (nat                                                                                                                                   | ipment<br>.ab<br>mple Number<br>me(s)/organ                                                                | Grundfos                                                                                                 | Readyflow 2                                                                          |  |

 Well #:
 MW-6

 Sample #:
 WSP-MW-06-GW 020511

#### **Groundwater Sampling Field Data Sheet**

| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 215-2662-0<br>RI/FS WA<br>1313 North<br>Walla Wall<br>WA State I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 004 AM1/06P<br>State Penitentiary<br>a 13th Avenue<br>la, WA 99362<br>Dept. of Correction                                                                                                                                                                                                                                       | Date<br>Loc:<br>Sam                                         | e<br>ation<br>pled By<br>ged By                                  | <u>J</u> [J][]<br>WSP<br>Mike Baxter (PMX)/Lara Linde<br>(PMX)<br>Same as above. |                                              |                    |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------|--------------------|--|--|--|
| Casing Diamete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | r: 2"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4"6"                                                                                                                                                                                                                                                                                                                            | Oth                                                         | ner                                                              |                                                                                  |                                              |                    |  |  |  |
| Depth to Water (feet)       123.54       Purge Vol. Meas.Method       Grad cyl & stop watch         Depth of Well (feet)       32.96       Date Purged       24.16         Reference Point (surveyors notch/etc)       169.56       Cubing       Purge Time (from/to)       Cubing         Date/Time Sampled       24.16       Flow Rate (ml/min)       Max                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                 |                                                             |                                                                  |                                                                                  |                                              |                    |  |  |  |
| Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$<br>Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>Calculated Purge Volume (gallons) $\mu\mu\nu$ Actual Purge Volume (gallons) $\mu\nu$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                 |                                                             |                                                                  |                                                                                  |                                              |                    |  |  |  |
| TIME       W.         (2400 hr)       LI         (1)       (1)         (2400 hr)       (1)         (1)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (1)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2)       (2)         (2) | ATER         p           EVEL         (ur           Greet)         ±           2.80         h.           3.82         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.804         6.           5.904         6.           5.904         6.           6.904         6. | OH         COND           nits)         (mS/cm)           0.1         ± 3%           13         0.476           14         0.476           24         0.474           25         0.474           25         0.344           15         0.344           16         0.344           176         0.344           176         0.344 | DO<br>(mg/L)<br>±10%<br><u>1.37</u><br>0.37<br>0.41<br>0.27 | TEMP<br>°C<br>13.17<br>14.27<br>15.27<br>15.27<br>15.27<br>15.27 | TURB.<br>±10%                                                                    | ORP<br>(mV)<br>±10mV<br>(13)<br>20<br>11<br> | CUM. VOL.<br>(gal) |  |  |  |

| Purge Equipment       | Grundfos Readyflow 2 | Sampling Equipment        | Grundfos Readyflow 2            |
|-----------------------|----------------------|---------------------------|---------------------------------|
| Laboratory            | OnSite Environmental | Date Sent to Lab          | $r = \frac{2/\sqrt{2}200}{m/n}$ |
| Chain-of-Custody (yes | /no) YES             | Field QC Sample Numbe     |                                 |
| Shipment Method       | FedEr Grundfe        | Split with (name(s)/organ |                                 |

| Well Integrity | Up- clear of depuis locks                 |                        | ş             |            |
|----------------|-------------------------------------------|------------------------|---------------|------------|
| Remarks        | Set 1014M10, at 26 1 Parce                | where a where in color | - milled like | 10- VikuM. |
| Signature      |                                           | Page                   | of            |            |
|                | / <i>////////////////////////////////</i> |                        |               |            |

 Well #:
 MW-7

 Sample #:
 WSP-MW-07-GW 220711

#### **Groundwater Sampling Field Data Sheet**

| Project Num<br>Project Nam<br>Project Addı<br>Client Name                                                                                                                                                                                                                                                         | aber 215-2<br>RI/FS<br>ress 1313<br>Walla<br>WA S                     | 662-004 AN<br>WA State I<br>North 13th A<br>Walla, WA<br>tate Dept. o                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A1/06P<br>Penitentiary<br>Avenue<br>99362<br>f Corrections                     | Date<br>Loca<br>Sam                                                          | e<br>ation<br>pled By<br>ged By                | <u>2/7/201</u><br>WSP<br>Mike Baxter (PMX)/Lara Linde<br>(PMX)<br>Same as above. |                                                              |                    |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------|--|
| Casing Diam                                                                                                                                                                                                                                                                                                       | neter: 2" _                                                           | 4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6"                                                                             | Oth                                                                          | ner                                            |                                                                                  |                                                              |                    |  |
| Depth to Water (feet) <u>W3.64</u> Purge Vol. Meas.Method Grad cyl & stop watch         Depth of Well (feet) <u>W3.64</u> Date Purged <u>Aftifield</u> Reference Point (surveyors notch/etc)       Purge Time (from/to) <u>OTHE - CARC</u> Date/Time Sampled <u>2/76/241 OT356</u> Flow Rate (ml/min) <u>Htop</u> |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |                                                                              |                                                |                                                                                  |                                                              |                    |  |
| Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$<br>Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>Calculated Purge Volume (gallons) Actual Purge Volume (gallons)                                                         |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |                                                                              |                                                |                                                                                  |                                                              |                    |  |
| TIME<br>(2400 hr)<br>09115<br>09117<br>09123<br>0927<br>0921<br>0931                                                                                                                                                                                                                                              | WATER<br>LEVEL<br>(feet)<br>53.42<br>53.42<br>53.42<br>53.44<br>53.44 | $pH (units) \pm 0.1 \\ (a. 14 + a. 14 + $ | COND<br>(mS/cm)<br>± 3%<br>0.1.81<br>0.614<br>0.614<br>0.614<br>0.614<br>0.614 | DO<br>(mg/L)<br>±10%<br>7,34<br>7,41<br>7,41<br>7,45<br>7,56<br>7,56<br>7,17 | ТЕМР<br>°C<br>13.43<br>16.67<br>16.78<br>16.78 | TURB.<br>±10%<br><u>213.C</u><br>91.4<br><u>6.51.3</u><br>391.4<br>42.7          | ORP<br>(mV)<br>±10mV<br>//////////////////////////////////// | CUM. VOL.<br>(gal) |  |

| Purge Equipment                                      | Grundfos Readyflow 2                                    | Sampling Equipment                                                  | Grundfos Readyflow 2        |
|------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------|-----------------------------|
| Laboratory<br>Chain-of-Custody (y<br>Shipment Method | OnSite Environmental<br>res/no) YES<br>FedEx Over night | Date Sent to Lab<br>Field QC Sample Numl<br>Split with (name(s)/org | per $\frac{24\pi/2011}{16}$ |
|                                                      |                                                         |                                                                     |                             |

| Well Integrity | OK-clear of Aderig not licked. |      | • |    |  |
|----------------|--------------------------------|------|---|----|--|
| Remarks        | but oumorat 17'                |      |   |    |  |
| Signature      | A I MIM                        | Page | [ | of |  |
|                | - UMMP                         |      |   |    |  |

 Well #:
 MW-8

 Sample #:
 WSP-MW-08-GW OA 05(1)

### **Groundwater Sampling Field Data Sheet**

| Project Nur<br>Project Nar<br>Project Ado<br>Client Nam                                                                                                                                                                                                                                                                                                                               | mber 215-2<br>ne RI/FS<br>iress 1313<br>Walla<br>wA S                                                                                                                                                                                                                                                              | 662-004 Al<br>WA State<br>North 13th<br>Walla, WA<br>tate Dept. c                                                                                                                         | M1/06P<br>Penitentiary<br>Avenue<br>A 99362<br>of Corrections             | Dat<br>Loc<br>San<br>Purg                                   | e<br>ation<br>npled By<br>ged By                                          | y Mike Baxter (PMX)/Lara Linde<br>(PMX)<br>Same as above. |                                                                                                                     |                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------|--|
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                            | meter: 2" _                                                                                                                                                                                                                                                                                                        | 4"                                                                                                                                                                                        | 6"                                                                        | Ot                                                          | her                                                                       |                                                           |                                                                                                                     |                    |  |
| Depth to W<br>Depth of W<br>Reference P<br>Date/Time S                                                                                                                                                                                                                                                                                                                                | Depth to Water (feet) $f_{i}$ , $f_{i}$ Purge Vol. Meas.Method Grad cyl & stop watchDepth of Well (feet) $(1 \neq 10)$ Date Purged $2 \neq i, f_{i}$ Reference Point (surveyors notch/etc) $f_{i}$ , $f_{i}$ Purge Time (from/to) $10f_{i}$ Date/Time Sampled $2 \neq i, f_{i}$ $10f_{i}$ Flow Rate (ml/min) $320$ |                                                                                                                                                                                           |                                                                           |                                                             |                                                                           |                                                           |                                                                                                                     |                    |  |
| P<br>P<br>C                                                                                                                                                                                                                                                                                                                                                                           | urge Volume<br>urge Volume<br>alculated Pu                                                                                                                                                                                                                                                                         | e Calculatio<br>e (gallons) f<br>rge Volume                                                                                                                                               | n: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)<br>e (gallons)                  | $gal/ft^{3})(\# (0)(+)(+)(+)(+)(+)(+)(+)(+)(+)(+)(+)(+)(+)$ | Casing vol<br>l'' = (0.65<br>Actual Pur                                   | umes)<br>3)(h)(#Cv);<br>rge Volume                        | 6" = (1.48<br>(gallons)                                                                                             | )(h)(#Cv)<br>      |  |
| TIME<br>(2400 hr)<br>                                                                                                                                                                                                                                                                                                                                                                 | WATER<br>LEVEL<br>(feet)<br>70.60<br>70.60<br>70.60<br>70.60<br>70.60                                                                                                                                                                                                                                              | $\begin{array}{c} pH \\ (units) \\ \pm 0.1 \\ \hline 1.10 \\ \hline 1.10 \\ \hline 1.10 \\ \hline 1.13 \\ \hline \end{array}$ | COND<br>(mS/cm)<br>± 3%<br>0. 434<br>0. 434<br>0. 404<br>0. 404<br>0. 643 | DO<br>(mg/L)<br>±10%<br>11.2%<br>11.2%<br>11.2%<br>11.3%    | TEMP<br>°C<br>1k:17<br>1k:07<br>1k:07<br>1k:07<br>1k:07<br>11:40<br>17:17 | TURB.<br>±10%<br>307.0<br>100.0<br>09.9<br>09.8           | ORP<br>(mV)<br>±10mV<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H<br>H | CUM. VOL.<br>(gal) |  |
| Purge Equipment       Grundfos Readyflow 2       Sampling Equipment       Grundfos Readyflow 2         Laboratory       OnSite Environmental       Date Sent to Lab       2476/2014         Chain-of-Custody (yes/no)       YES       Field QC Sample Number       24/2014         Shipment Method       Foulty       Ovanuight       Split with (name(s)/organization)       24/2014 |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                           |                                                                           |                                                             |                                                                           |                                                           |                                                                                                                     |                    |  |
| Well Integrit<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                 | y <u>cip-c</u><br><u>Fict p</u><br>AMU                                                                                                                                                                                                                                                                             | icur st de                                                                                                                                                                                | ling, not la                                                              | elec .                                                      | Page                                                                      | V                                                         | of                                                                                                                  | i                  |  |

Г

Well #:<u>MW-9</u> Sample #:<u>WSP-MW-09-GW- نعرية (</u>

### **Groundwater Sampling Field Data Sheet**

| Project Number<br>Project Name<br>Project Address<br>Client Name<br>Casing Diameter<br>Depth to Water (for<br>Reference Point (<br>Date/Time Sample)                                                                  | 215-2662<br><u>RI/FS W</u><br>1313 No<br><u>Walla W</u><br>WA Stat<br>: 2"<br>feet)<br>feet)<br>for the state of the s | 2-004 AM<br>A State Port<br>rth 13th A<br>alla, WA<br>e Dept. of<br>4"<br>                             | 1/06P<br>enitentiary<br>venue<br>99362<br>Corrections<br>6"<br>6"   | Date<br>Loca<br>Sam<br>Purg<br>Oth<br>Unde<br>Purg<br>Date<br>Purg<br>Flow | Location WSP<br>Sampled By Mike Bax<br>(PMX)<br>Purged By Same as a<br>Other<br>Purge Vol. Meas.Metho<br>Date Purged<br>Purge Time (from/to)<br>Flow Rate (ml/min) |                                                       |                                              | d Grad cyl & stop watch<br><u>Afglad</u><br><u>H36 - 1213</u><br><u>H20</u> |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------|--|--|
| Purge<br>Purge<br>Calcula                                                                                                                                                                                             | Volume C<br>Volume (g<br>ated Purge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | alculation<br>allons) fo<br>Volume (                                                                   | : (πr <sup>2</sup> h)(7.48<br>r 2" = (0.16)<br>(gallons)            | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4                                   | Casing vol<br>" = (0.653<br>Actual Pur                                                                                                                             | umes)<br>3)(h)(#Cv);<br>ge Volume                     | 6" = (1.48<br>(gallons)                      | )(h)(#Cv)<br><u></u>                                                        |  |  |
| TIME<br>(2400 hr)       WA<br>LEY<br>(fe         113 <sup>10</sup> 71.         11473       71.         11473       71.         11473       71.         1161       71.         1155       71.1         1155       71.1 | TER         VEL         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (1)         (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | pH<br>(units)<br>± 0.1<br>1.36<br>2.21<br>2.04<br>2.04<br>2.04<br>2.04<br>2.04<br>2.04<br>2.04<br>2.04 | COND<br>(mS/cm)<br>± 3%<br>1.06<br>0.746<br>0.766<br>0.761<br>0.761 | DO<br>(mg/L)<br>±10%<br>10.12<br>10.27<br>10.37<br>10.37<br>10.37          | TEMP<br>°C<br>14.10<br>14.54<br>16.57<br>16.76<br>16.76                                                                                                            | TURB.<br>±10%<br>2/0(7)<br>1/5(0.3)<br>6/0.7<br>3/8/4 | ORP<br>(mV)<br>±10mV<br>57<br>49<br>49<br>40 | CUM. VOL.<br>(gal)                                                          |  |  |
| Purge Equipment                                                                                                                                                                                                       | Gru                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ndfos Rea                                                                                              | dyflow 2                                                            | Samp                                                                       | oling Equ                                                                                                                                                          | pment g                                               | Grundfos I                                   | Readyflow 2                                                                 |  |  |
| Laboratory<br>Chain-of-Custody<br>Shipment Method                                                                                                                                                                     | OnS<br>(yes/no)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ite Enviro<br>YES<br>JEx Ove                                                                           | nmental<br>vuigkt                                                   | Date<br>Field<br>Split                                                     | Sent to L<br>QC Samp<br>with (nan                                                                                                                                  | ab<br>ple Number<br>ne(s)/organi                      | zation)                                      | 15/2011<br>Ma<br>Ma                                                         |  |  |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                | Officie<br>Set pimp<br>MAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | uv »f hd<br>o 1:5 86<br>htt                                                                            | ang, lirke                                                          |                                                                            | Page                                                                                                                                                               | ·                                                     | of                                           |                                                                             |  |  |

 Well #:
 MW-5

 Sample #:
 WSP-MW-05-GW- & Arthle

### Groundwater Sampling Field Data Sheet

| Project Numb<br>Project Name<br>Project Addre<br>Client Name<br>Casing Diame<br>Depth to Wate<br>Depth of Well<br>Reference Poi<br>Date/Time Sam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | $\frac{662-004 \text{ AN}}{\text{WA State I}}$ North 13th 2<br>Walla, WA<br>tate Dept. of<br>$\frac{4^{\prime\prime}}{4^{\prime\prime}}$ $\frac{4^{\prime\prime}}{4^{\prime\prime}}$ $\frac{1}{4^{\prime\prime}}$ | 11/06P<br>Penitentiary<br>Avenue<br>99362<br>of Corrections<br>6"<br>6"<br>7.07<br>6"<br>7.07<br>7.07<br>7.07<br>0.07<br>0.07<br>0.07<br>0.07<br>0.0 | Date<br>Loc<br>Sam<br>Purg<br>Oth<br>Purg<br>Date<br>Flov                | e<br>ation<br>upled By<br>ged By<br>her<br>ge Vol. M<br>Purged<br>ge Time (f<br>v Rate (m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | WSP<br>Mike Baxt<br>(PMX)<br>Same as al<br>eas.Method<br>rom/to)                    | 2/9/201<br>ter (PMX)/<br>bove.<br>Grad cyl 2<br>44<br>0905                      | k stop watch                                            |                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------|
| Pury<br>Pury<br>Calo<br>TIME V<br>(2400 hr) D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ge Volume<br>ge Volume<br>culated Pu<br>WATER<br>LEVEL<br>(feet)<br>57.14<br>57.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | e Calculatio<br>e (gallons) f<br>rge Volume<br>pH<br>(units)<br>$\pm 0.1$<br><u><math>5</math></u> $40$                                              | n: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons)<br>(mS/cm)<br>± 3% | $\begin{array}{c} \text{gal/ft}^{3})(\# (0)(\# Cv); 4)(\# Cv); 4$ | Casing vo<br>a = (0.65)<br>Actual Pu<br>TEMP<br>°C<br><u>12.755</u><br><u>16.07</u> | lumes)<br>3)(h)(#Cv);<br>rge Volume<br>TURB.<br>$\pm 10\%$<br>$\overline{70\%}$ | $6" = (1.48)$ $(gallons)$ $ORP$ $(mV)$ $\pm 10mV$ $MID$ | )(h)(#Cv)<br><br>CUM. VOL.<br>(gal) |
| 0 11/2 1<br>0916 1<br>0910 1<br>09117 1<br>09117 1<br>0917 1<br>000 1<br>00000 1<br>000 1<br>000000 1<br>0000 1<br>0000 1<br>0000 1<br>0000 1<br>00000000 | 24-01<br>83.00<br>72.417<br>52.27<br>82.39                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6.56<br>6.76<br>6.76<br>6.95                                                                                                                         | 0.274<br>0.274<br>0.274<br>0.274<br>0.274<br>0.240<br>0.264              | 5.97<br>5.97<br>5.75<br>5.69<br>5.76                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 10.94                                                                               | 610.0<br>215.0<br>109.0<br>1161.0<br>116.0                                      | 40<br>40<br>57<br>57<br>51                              |                                     |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Met                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ent <u>C</u><br>Cody (yes/n<br>nod                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Frundfos Re<br>DnSite Envir<br>0) YES<br>Usud dali                                                                                                   | adyflow 2<br>ronmental                                                   | Samj<br>Date<br>Field<br>Split                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | pling Equ<br>Sent to L<br>l QC Sam<br>with (nar                                     | ipment<br>ab<br>ple Number<br>ne(s)/organ                                       | $\frac{\text{Grundfos I}}{\frac{1}{r}}$                 | Readyflow 2<br>U/2011<br>Wa<br>Wa   |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Flutt<br>Surt 10<br>MM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | unui poit<br>Wimpont 91                                                                                                                              | -d put he c                                                              | inp cn We                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | llcoving<br>Page                                                                    |                                                                                 | of                                                      |                                     |

 Well #:
 MW-12

 Sample #:
 WSP-MW-12-GW D1G111

### Groundwater Sampling Field Data Sheet

| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                | 215-2662-004<br>RI/FS WA Sta<br>1313 North 13<br>Walla Walla, W<br>WA State Dep              | AM1/06P<br>te Penitentiary<br>th Avenue<br>VA 99362<br>t. of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Date                                                                                                           | Date $2/4/261/$ LocationWSPSampled ByMike Baxter (PMX)/Lara Linde<br>(PMX)Purged BySame as above.              |                                                           |                                                      |                                               |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------|-----------------------------------------------|-------|------|
| Casing Diameter                                                                                                                                                                 | :: 2"4"                                                                                      | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Oth                                                                                                            | ner                                                                                                            |                                                           |                                                      |                                               |       |      |
| Depth to Water (<br>Depth of Well (f<br>Reference Point<br>Date/Time Samp                                                                                                       | feet)<br>eet)<br>(surveyors notch<br>led <u> </u>                                            | 1556<br>77.48<br>/etc) <u>(e.) &amp; (</u><br>iy 1106                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Purg<br>Date<br>Purg<br>Flow                                                                                   | e Vol. M<br>Purged<br>Time (f<br>Rate (m                                                                       | eas.Method<br>r̀om/to)<br>l/min)                          | Grad cyl a<br>24<br>Wi <del>r ogsi</del><br>31       | & stop watch<br>9/2011<br>032-11415<br>50     |       |      |
| Purge<br>Purge<br>Calcul                                                                                                                                                        | Volume Calcula<br>Volume (gallons<br>ated Purge Volu                                         | tion: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)(<br>me (gallons)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>//                                                                 | Casing vo<br>" = (0.65<br>Actual Pu                                                                            | lumes)<br>3)(h)(#Cv);<br>rge Volume                       | 6" = (1.48<br>(gallons)                              | b)(h)(#Cv)                                    |       |      |
| TIME       WA         (2400 hr)       LE         (f       (f         1037       68.         1044       68.         1053       68.         1057       68.         1057       68. | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                         | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ 0.46 \\ 0.46 \\ 0.46 \\ 0.46 \\ 0.46 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ 0.41 \\ $ | DO<br>(mg/L)<br>±10%<br><u>7.24</u><br><u>6.64</u><br><u>6.64</u><br><u>7.24</u><br><u>7.63</u><br><u>7.63</u> | TEMP<br>°C<br>12.70<br>14.415<br>14.415<br>14.415<br>14.52<br>15.00<br>17.46                                   | TURB.<br>±10%<br>(#10.0<br>105.0<br>112.0<br>76.0<br>41.3 | ORP<br>(mV)<br>±10mV<br>%T<br>1/4<br>bb<br>40<br>3/6 | CUM. VOL.<br>(gal)                            |       |      |
| Purge Equipment<br>Laboratory<br>Chain-of-Custody<br>Shipment Method<br>Well Integrity<br>Remarks<br>Signature                                                                  | Grundfos<br>OnSite Er<br>y (yes/no) YES<br>1 Hand 2<br>UN HUM MU<br>Scot prump or<br>And Add | Readyflow 2<br>vironmental<br>divared<br>with butted, too<br>g Hy, Centerde                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Samp<br>Date<br>Field<br>Split<br>&r (. Usan<br>J. MS/MS                                                       | Sent to L<br>QC Sam<br>with (nar<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>() | ipment<br>ab<br>ple Number<br>ne(s)/organi                | Grundfos                                             | Readyflow 2<br>/ W/2.u N<br>- MW-12-GW-<br>Wa | 0209U | MgMa |

 Well #:
 MW-11

 Sample #:
 WSP-MW-11-GW- G

### **Groundwater Sampling Field Data Sheet**

| Project Nur<br>Project Nar<br>Project Add<br>Client Nar                                                                                                                                                                                                                                                                                                                         | mber 215-2<br>me <u>RI/FS</u><br>dress 1313<br>Walla<br>ne WA S                                                                                                                                                                                   | 662-004 AN<br>WA State I<br>North 13th A<br>Walla, WA<br>tate Dept. o                                                                                       | A1/06P<br>Penitentiary<br>Avenue<br>99362<br>f Corrections                              | Date<br>Loca<br>Sam<br>Purg                                                 | ation<br>pled By<br>ged By                                                                                    | WSP<br>Mike Baxt<br>(PMX)<br>Same as ab                         | er (PMX)/)<br>pove.                                            | Lara Linde         |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|--------------------|--|--|--|
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                      | Casing Diameter: 2" 4" 6" Other                                                                                                                                                                                                                   |                                                                                                                                                             |                                                                                         |                                                                             |                                                                                                               |                                                                 |                                                                |                    |  |  |  |
| Depth to Water (feet)       67.40       Purge Vol. Meas.Method Grad cyl & stop watch         Depth of Well (feet)       76.46       Date Purged       2.161/2.011         Reference Point (surveyors notch/etc)       120.01 (1.500/2.010)       Purge Time (from/to)       1301 - 13415         Date/Time Sampled       2.49/2.011 (1.330)       Flow Rate (ml/min)       4000 |                                                                                                                                                                                                                                                   |                                                                                                                                                             |                                                                                         |                                                                             |                                                                                                               |                                                                 |                                                                |                    |  |  |  |
| P<br>P<br>C                                                                                                                                                                                                                                                                                                                                                                     | Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$ (# Casing volumes)<br>Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br>Calculated Purge Volume (gallons) Actual Purge Volume (gallons) |                                                                                                                                                             |                                                                                         |                                                                             |                                                                                                               |                                                                 |                                                                |                    |  |  |  |
| TIME<br>(2400 hr)<br>13(2)<br>1310<br>1314<br>1317<br>1322<br>1326                                                                                                                                                                                                                                                                                                              | WATER<br>LEVEL<br>(feet)<br>64.72<br>64.72<br>64.72<br>64.72<br>64.72                                                                                                                                                                             | $\begin{array}{c} pH \\ (units) \\ \pm 0.1 \\ \hline 1.64 \\ \hline 1.27 \\ \hline 1.27 \\ \hline 1.65 \\ \hline 1.65 \\ \hline 1.65 \\ \hline \end{array}$ | COND<br>(mS/cm)<br>± 3%<br>1.01<br>0.44<br>0.44<br>0.44<br>0.44<br>0.44<br>0.44<br>0.44 | DO<br>(mg/L)<br>±10%<br><u>1.M7</u><br>7.66<br>7.44<br>7.44<br>7.44<br>7.44 | TEMP<br>°C<br>17.54<br>20.12<br>20.12<br>20.12<br>20.12<br>20.12<br>20.12<br>20.12<br>20.12<br>20.12<br>20.12 | TURB.<br>±10%<br>2000<br>690,0<br>224.0<br>68.3<br>44.5<br>32.6 | ORP<br>(mV)<br>±10mV<br>775<br>775<br>623<br>670<br>477<br>477 | CUM. VOL.<br>(gal) |  |  |  |

| Purge Equipment                   | Grundfos Readyflow 2               | Sampling Equipment                       | Grundfos Readyflow 2       |
|-----------------------------------|------------------------------------|------------------------------------------|----------------------------|
| Laboratory<br>Chain-of-Custody (y | OnSite Environmental<br>es/no) YES | Date Sent to Lab<br>Field QC Sample Numl | ber $\frac{2/11/201}{100}$ |
| Shipment Method                   | Namel Delivered                    | Split with (name(s)/org                  | anization) Ma              |

| Well Integrity<br>Remarks | Fluch mount la Hail and leiked. | Clear of Aclaris. |    |   |  |
|---------------------------|---------------------------------|-------------------|----|---|--|
| Signature                 | 1/h///                          | Page              | of | 1 |  |
|                           |                                 |                   |    |   |  |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\06P-GW-SWSamplesPMX\Blank GW Form.doc

I

Well #:<u>MW-10</u> Sample #:<u>WSP-MW-10-GW- کلمازا (</u>

### **Groundwater Sampling Field Data Sheet**

| Project Nur<br>Project Nar<br>Project Ado<br>Client Nam                                           | mber 215-2<br>ne RI/FS<br>dress 1313<br>walla<br>e WA S                                 | 662-004 AN<br>WA State I<br>North 13th<br>Walla, WA<br>tate Dept. o                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1/06P<br>Penitentiary<br>Avenue<br>99362<br>f Corrections                                                           | Date                                                                                                            | Lara Linde                                                                                   |                                                                                             |                                                                             |                                                      |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------|
| Casing Dia                                                                                        | meter: 2"                                                                               | <u> </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6"                                                                                                                   | Otl                                                                                                             | ner                                                                                          |                                                                                             | ******                                                                      |                                                      |
| Depth to W<br>Depth of W<br>Reference P<br>Date/Time S<br>P<br>P                                  | ater (feet)<br>'ell (feet)<br>Point (survey<br>Sampled<br>urge Volume<br>urge Volume    | ج<br>T<br>ors notch/et<br>للإل<br>e Calculatio<br>و (gallons) f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.26<br>t.15<br>c) $\underline{\tau_{5.4.5}}$ ( <i>ive</i><br>1.25) 1440<br>n: ( $\pi r^2$ h)(7.48<br>or 2" = (0.16) | Purg<br>Date<br>Purg<br>Flov<br>gal/ft <sup>3</sup> )(# C<br>0(h)(#Cv); 4                                       | ge Vol. Mo<br>e Purged<br>ge Time (f<br>v Rate (ml<br>Casing vol<br>e" = (0.65)              | eas.Method<br>rom/to)<br>//min)<br>umes)<br>3)(h)(#Cv);                                     | Grad cyl &<br>2/0<br>14/15<br>                                              | k stop watch<br>1/2011<br>- 11/62<br>20<br>)(h)(#Cv) |
|                                                                                                   | Calculated Pu                                                                           | rge Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (gallons)                                                                                                            | <u>w/c </u>                                                                                                     | Actual Pur                                                                                   | rge Volume                                                                                  | e (gallons)                                                                 |                                                      |
| 11ME<br>(2400 hr)<br><u>11419</u><br><u>11425</u><br><u>11425</u><br><u>11431</u><br><u>11436</u> | WATER<br>LEVEL<br>(feet)<br>₹1.30<br>₹1.30<br>₹1.30<br>₹1.30<br>₹1.30<br>₹1.30<br>₹1.30 | $\begin{array}{c} pH \\ (units) \\ \pm 0.1 \\ \hline 4.82 \\ \hline 6.92 \\ \hline 6.92 \\ \hline 6.92 \\ \hline 6.92 \\ \hline \hline \\ 6.92 \\ \hline \hline \\ \hline $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | COND<br>(mS/cm)<br>± 3%<br>0.40<br>0.44<br>0.44<br>0.43<br>0.43                                                      | DO<br>(mg/L)<br>±10%<br><u>\$.07</u><br><u>8.74</u><br><u>8.74</u><br><u>7.84</u><br><u>7.94</u><br><u>7.94</u> | 14.341         14.560         14.560         18.43         18.43         18.45         18.45 | ТОRВ.<br>±10%<br><u>2i9.0</u><br><u>1000</u><br><u>2i9.0</u><br><u>11b.0</u><br><u>78.6</u> | ORP<br>(mV)<br>±10mV<br><u>42</u><br>59<br>47<br>47<br>47<br>47<br>47<br>47 | CUM. VOL.<br>(gal)                                   |
| Purge Equip<br>Laboratory<br>Chain-of-Cu<br>Shipment M                                            | ustody (yes/n                                                                           | DinSite Envir<br>DinSite Envir<br>DinSite Envir<br>DinSite Envir<br>DinSite Envir<br>DinSite Envir<br>DinSite Envir<br>DinSite Envir                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | adyflow 2<br>conmental                                                                                               | Samj<br>Date<br>Field<br>Split                                                                                  | Sent to L<br>QC Samj<br>with (nan                                                            | ab<br>ple Number<br>ne(s)/organ                                                             | $\frac{\text{Grundfos I}}{\text{r}}$                                        | Readyflow 2<br>11/2011<br>14<br>14<br>14             |
| Well Integrit<br>Remarks<br>Signature                                                             | ty <u>Ok-dl</u><br><u>Sot pr</u><br>M                                                   | who white the second se | ootten ann c                                                                                                         | into locker                                                                                                     | <u>. Cl</u> euro<br>Page                                                                     | i debvis.                                                                                   | of                                                                          |                                                      |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\06P-G SWSamplesPMX\Blank GW Form.doc

Control of the second

 Well #:
 MW-10

 Sample #:
 SLF-MW-10-GW- OLOU

### Groundwater Sampling Field Data Sheet

| Project NameRI/FS WA State Penitentiary<br>1313 North 13th Avenue<br>Walla Walla, WA 99362<br>Client NameLocationSudbury LFClient NameWA State Dept. of CorrectionsPurged BySame as above.Casing Djameter: 2" $4$ "6"OtherDepth to Water (feet) $24-5$ [<br>Depth of Well (feet)Purge Vol. Meas.Method Grad cyl & stop watch<br>Date PurgedDepth to Water (feet) $-1000000000000000000000000000000000000$ |                                           |                                      |             |                               |                           |                         |             |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------|-------------|-------------------------------|---------------------------|-------------------------|-------------|--|--|
| Purge<br>Calcul                                                                                                                                                                                                                                                                                                                                                                                           | Volume (gallons)<br>ated Purge Volur      | for $2^{"} = (0.16)$<br>ne (gallons) | (h)(#Cv); 4 | $a^{*} = (0.65)$<br>Actual Pu | 3)(h)(#Cv);<br>rge Volume | 6" = (1.48<br>(gallons) | )(h)(#Cv)   |  |  |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                    |                                           |                                      |             |                               |                           |                         |             |  |  |
| Purge Equipment<br>Laboratory                                                                                                                                                                                                                                                                                                                                                                             | <u>Grundfos I</u><br>OnSite En            | Readyflow 2<br>vironmental           | Samj        | pling Equ<br>Sent to L        | ipment<br>.ab             | Grundfos I              | Readyflow 2 |  |  |
| Chain-of-Custod<br>Shipment Method                                                                                                                                                                                                                                                                                                                                                                        | y (yes/no) <u>YES</u><br>1 <u>Have de</u> | livered                              | Field       | l QC Sam<br>with (nar         | ple Number<br>ne(s)/organ | r<br>ization)           | W/G<br>W/G  |  |  |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                    | Oh-licher, Ma<br>Dedicident pour          | llh<br>mp well.                      |             | Page                          | - VProject                | of                      | <u>i</u>    |  |  |

 Well #:
 MW-7

 Sample #:
 SLF-MW-07-GW 024634

### **Groundwater Sampling Field Data Sheet**

| Project Number<br>Project Name<br>Project Address<br>Client Name<br>Casing Diameter<br>Depth to Water (<br>Depth of Well (fr<br>Reference Point<br>Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\frac{215-2662-00}{\text{RI/FS WA St}}$ $\frac{\text{RI/FS WA St}}{1313 \text{ North 1}}$ $\frac{\text{Walla Walla,}}{\text{WA State De}}$ $\frac{\text{Walla Walla,}}{\text{WA State De}}$ $\text{Call Control of the set o$                                                                                                                                                            | 4 AM1/06P<br>ate Penitentiary<br>3th Avenue<br>WA 99362<br>pt. of Corrections<br>"6"<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Date<br>Loc<br>Sam<br>Purş<br>Ot<br>Date<br>Purş<br>Date<br>Sgal/ft <sup>3</sup> )(# ( | e<br>ation<br>ppled By<br>ged By<br>her<br>ge Vol. M<br>e Purged<br>ge Time (1<br>v Rate (m<br>Casing vo | Sudbury L<br>Mike Baxt<br>(PMX)<br>Same as at<br>eas.Method<br>from/to)<br>l/min) | <u>P   0 2011</u><br>F<br>er (PMX)/<br>pove.<br>Grad cyl &<br>2/11<br>1020<br>K | Lara Linde              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------|
| Purge<br>Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume (gallo<br>ated Purge Vol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ns) for 2" = (0.16)<br>ume (gallons)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | )(h)(#Cv); 4                                                                           | l" = (0.65<br>Actual Pu                                                                                  | 3)(h)(#Cv);<br>rge Volume                                                         | 6" = (1.48<br>(gallons)                                                         | )(h)(#Cv)               |
| TIME       WA         (2400 hr)       LE         (f       (f          004       47          012       41          012       41          016       47          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       41          010       < | $\begin{array}{ccc} \text{ATER} & \text{pH} \\ \text{VEL} & (\text{unit} \\ \text{eet}) & \pm 0. \\ 0.2 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 4.37 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 & 0.1 \\ 0.1 &$ | $ \begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ 1 \pm 3\% \\ \hline 0,107 \\ \hline 0,10$ | DO<br>(mg/L)<br>±10%<br>±.c4<br>£.c4<br>£.c4<br>£.c4<br>£.c5<br>£.65                   | TEMP<br>°C<br>12.76<br>12.76<br>12.91<br>12.91<br>13.00                                                  | TURB.<br>±10%<br>144.0<br>236.0<br>124.0                                          | ORP<br>(mV)<br>±10mV<br>78<br>76<br>76<br>76<br>76<br>76<br>76                  | CUM. VOL.<br>(gal)      |
| Purge Equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u>Grundfo</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | s Readyflow 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sam                                                                                    | pling Equ                                                                                                | ipment                                                                            | Grundfos I                                                                      | Readyflow 2             |
| Laboratory<br>Chain-of-Custody<br>Shipment Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | OnSite I<br>y (yes/no) YES<br>1 <u>Hund</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Environmental<br>S<br>Welivered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Date<br>Field<br>Split                                                                 | Sent to L<br>l QC Sam<br>with (nar                                                                       | .ab<br>ple Number<br>ne(s)/organi                                                 | l/                                                                              | 11/2011<br>11/4<br>11/4 |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Oh-capped<br>sot pumpos<br>AM Hul/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | und locked, clei<br>+ 173'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | w of depu                                                                              | <u>16.</u><br>Page                                                                                       |                                                                                   | of                                                                              |                         |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\06P-GW-SWSamplesPMX\Blank GW Form.doc

.

 Well #:
 MW-9

 Sample #:
 SLF-MW-09-GW- 054/011

### **Groundwater Sampling Field Data Sheet**

| Project Number       215-2662-004 AM1/06P       Date $2/10/2011$ Project Name       RI/FS WA State Penitentiary       Location       Sudbury LF         Project Address       1313 North 13th Avenue       Sampled By       Mike Baxter (PMX)/Lara Linde         Walla Walla, WA 99362       Purged By       Same as above.         Client Name       WA State Dept. of Corrections       Purged By         Casing Diameter: 2"       4"       6"       Other |                                                         |                                                                                                   |                                                                 |                                                                   |                                                         |                                                                         |                                    |                               |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------|-------------------------------|--|--|--|
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                                                                                                    | meter: 2"                                               | 4"                                                                                                | 6"                                                              | Otł                                                               | ner                                                     |                                                                         |                                    |                               |  |  |  |
| Depth to W<br>Depth of W<br>Reference I<br>Date/Time                                                                                                                                                                                                                                                                                                                                                                                                          | Vater (feet)<br>Vell (feet)<br>Point (survey<br>Sampled | MJF n<br>246 L<br>ors notch/et<br>7/10/201                                                        | leaburilde<br>historica<br>c) Ton at Cur<br>( 1135              | Purg<br>Date<br>Date<br>Flow                                      | e Vol. Me<br>Purged<br>e Time (f<br>v Rate (ml          | eas.Method<br>rom/to)<br>l/min)                                         | Grad cyl &<br>2/10<br>1110 -<br>47 | & stop watch                  |  |  |  |
| F<br>F<br>C                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Purge Volume<br>Purge Volume<br>Calculated Pu           | e Calculatio<br>e (gallons) f<br>rge Volume                                                       | n: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons)           | 8 gal/ft <sup>3</sup> )(# C<br>)(h)(#Cv); 4<br>%/                 | Casing vol<br>" = (0.653<br>Actual Pur                  | lumes)<br>3)(h)(#Cv);<br>rge Volume                                     | 6" = (1.48<br>(gallons)            | )(h)(#Cv)<br>ろ                |  |  |  |
| TIME<br>(2400 hr)                                                                                                                                                                                                                                                                                                                                                                                                                                             | WATER<br>LEVEL<br>(feet)                                | pH<br>(units)<br>± 0.1<br><u>1.18</u><br><u>7.04</u><br><u>7.05</u><br><u>7.07</u><br><u>7.07</u> | COND<br>(mS/cm)<br>± 3%<br>0.47<br>0.47<br>0.47<br>0.47<br>0.47 | DO<br>(mg/L)<br>±10%<br>10.23<br>10.37<br>10.43<br>10.17<br>10.16 | TEMP<br>°C<br>13.41<br>13.56<br>13.40<br>13.40<br>13.40 | TURB.<br>±10%<br><u>6.7.1</u><br><u>9.6</u><br><u>6.0</u><br><u>6.0</u> | ORP<br>(mV)<br>±10mV<br> 0 <br>    | CUM. VOL.<br>(gal)            |  |  |  |
| Purge Equip                                                                                                                                                                                                                                                                                                                                                                                                                                                   | oment <u>C</u>                                          | Brundfos Re                                                                                       | adyflow 2                                                       | Sam                                                               | oling Equ                                               | ipment g                                                                | Grundfos 1                         | Readyflow 2                   |  |  |  |
| Laboratory<br>Chain-of-Cu<br>Shipment M                                                                                                                                                                                                                                                                                                                                                                                                                       | (ustody (yes/n<br>lethod                                | DnSite Envir<br>o) <u>YES</u><br>Ward Deli                                                        | ronmental<br>Jured                                              | Date<br>Field<br>Split                                            | Sent to L<br>QC Samp<br>with (nan                       | ab<br>ple Number<br>ne(s)/organi                                        | zation)                            | 14/2011<br>14<br>Wa           |  |  |  |
| Well Integri<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                          | ity <u>Olh-c</u><br>Not abl                             | upped, Jack                                                                                       | ed. Delicate<br>water clear                                     | d NUMD.<br>M. Probe ;                                             | <u>eté cuuj</u><br>_ Page                               | A ap cr pi                                                              | um <u>ha hose</u> ,<br>of          | <u>[wivee, 12" m</u> enum<br> |  |  |  |

Sample #:\_\_\_\_

Well #: <u>MW-1</u> WSP-MW-01-GW- <u>O(20)</u>

Groundwater Sampling Field Data Sheet

|                           |                                                                          |                 |                          |                        | and the second sec |                                   |             |                   |              |
|---------------------------|--------------------------------------------------------------------------|-----------------|--------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------|-------------------|--------------|
| Project Nu                | mber 2                                                                   | 215-26          | 62-004                   |                        | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | e                                 | 6/20/2      | 611               | ×            |
| Project Nat<br>Project Ad | dress                                                                    | KI/FS<br>1313 N | WA State I<br>lorth 13th | Avenue                 | Loc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ation                             | WA State    | Penitentiar       | У            |
| 110,000114                | 1                                                                        | Walla '         | Walla, WA                | . 99362                | Sam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sampled By Mike Baxter/Lara Linde |             |                   | nde          |
| Client Nan                | ne <u>r</u>                                                              | WA St           | ate Dept. o              | f Corrections          | Purg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ged By                            | (Same as a  | ibove.)           |              |
| [                         |                                                                          |                 |                          |                        | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                   |             |                   |              |
| Casing Dia                | meter: 2                                                                 | 2"              | X 4"                     | 6"                     | Otl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ner                               |             |                   |              |
|                           |                                                                          |                 |                          |                        | 5. de                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                   |             |                   |              |
| Depth to W                | ater (fe                                                                 | et) _           | 58                       | .00                    | Purg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ge Vol. Me                        | eas.Method  | Grad cyl &        | & stop watch |
| Reference I               | oint (s                                                                  | t)<br>Irvevo    | rs notch/et              | $\frac{1}{2}$          | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purged                            | rom/to)     | U/10              | 12011        |
| Date/Time                 | Sample                                                                   | d               | 6/10                     | 12011 1020             | Flov                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | v Rate (ml                        | /min)       | 280               | 050          |
| 7                         |                                                                          |                 | 1.                       | P 1                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
| P                         | urge V                                                                   | olume           | Calculatio               | n: $(\pi r^2 h)(7.48)$ | $\sigma_{2}^{1/ft^{3}} = (\pm 1)^{3}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | asing vol                         | umes)       | 8                 |              |
| F                         | Purge V                                                                  | olume           | (gallons) f              | or $2'' = (0.16)$      | (h)(#Cv); 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | a = (0.653)                       | 3)(h)(#Cv); | 6" = (1.48        | )(h)(#Cv)    |
| (                         | Calculat                                                                 | ed Pur          | ge Volume                | (gallons) <u>N</u>     | VA A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Actual Pur                        | ge Volume   | (gallons)         | 2            |
|                           |                                                                          |                 |                          | · · · · · ·            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The second                        |             |                   |              |
| TIME                      | WAT                                                                      | ER              | pН                       | COND                   | DO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TEMP                              | TURB.       | ORP               | CUM. VOL.    |
| (2400 hr)                 | LEV                                                                      | EL              | (units)                  | (mS/cm)                | (mg/L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | °C                                | ±10%        | (mV)              | (gal)        |
| GOITTO                    | (fee                                                                     | t)              | $\pm 0.1$                | ± 3%                   | ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 11-1                              |             | ±10mV             |              |
| OCIEN                     | 100.0                                                                    | 26              | 6.17                     | 0.123                  | £.43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 16.86                             | 215         | 17                |              |
| OTEN                      | 50.0                                                                     | 02              | 6.78                     | 0.119                  | 7.84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 19:17                             | 22.10       | 75                |              |
| 1002                      | 00.0                                                                     | 2               | 6.81                     | 0,119                  | 7.43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 19.89                             | 19.8        | 79                |              |
| 1006                      | 58.0                                                                     | 2               | 6.50                     | 0,121                  | 7.02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 19.70                             | 20.2        | 80                | 0            |
| 1010                      | 68.0                                                                     | 2               | 6.80                     | 0.121                  | 6.95                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 19.29                             | 22.F        | 74                | -2gal_       |
|                           |                                                                          | ·               |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   | 0            |
|                           |                                                                          |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
|                           |                                                                          |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
|                           |                                                                          |                 | (6276.)                  |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             | ·                 |              |
|                           |                                                                          |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
| 2                         |                                                                          |                 |                          |                        | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                   |             |                   |              |
|                           |                                                                          |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
|                           |                                                                          |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
| Purge Equip               | oment                                                                    | G               | rundfos Re               | adyflow 2              | Samj                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | oling Equi                        | pment       | Grundfos I        | Readyflow 2  |
| Laboratory                |                                                                          | O               | nSite Envir              | onmental               | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Sent to L                         | ab          | Cel               | 1/2011       |
| Chain-of-Cu               | ustody (                                                                 | yes/no          | ) YES                    |                        | Field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | QC Sam                            | ple Number  |                   | 1101         |
| Shipment M                | [ethod                                                                   | Ē               | ENER                     |                        | Split                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | with (nan                         | ne(s)/organ | ization) <u>N</u> | /A           |
|                           |                                                                          |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   | ×            |
| Well Integri              | ty _(                                                                    | 14-1            | oched. 1                 | lad to dea             | v spictory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | o and wa                          | gps.        |                   |              |
| Remarks                   | Remarks Pauly sof at left. Low producing well. Tranke establishing flow. |                 |                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |             |                   |              |
| Signature                 | -1                                                                       | 4511            | 11/                      | r                      | 1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Page                              | 1           | of                | 1            |

Sample #:\_\_\_\_\_

Well #: <u>MW-9</u> WSP-MW-09-GW-0(2011

# Groundwater Sampling Field Data Sheet

| Project Numbe<br>Project Name<br>Project Addres<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\begin{array}{r} \text{er}  \underline{215-2}\\ \hline \text{RI/FS}\\ \hline 13131\\ \hline \text{Walla}\\ \hline \text{WA S} \end{array}$ | 662-004<br>WA State I<br>North 13th A<br>Walla, WA<br>tate Dept. o | Penitentiary<br>Avenue<br>99362<br>f Corrections | Date<br>Loc:<br>Sam<br>Purg    | DateUnited StateLocationWA StateWA StatePenitentiarySampled ByMikePurged By(Same as above.) |                                           |                         |               |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------|---------------|--|
| Casing Diamet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | er: 2" _                                                                                                                                    | X_4"                                                               | 6"                                               | Oth                            | ner                                                                                         |                                           | 10                      |               |  |
| Depth to Water (feet) $44.15$ Purge Vol. Meas.MethodGrad cyl & stop watchDepth of Well (feet) $57.45$ Date Purged $6160 [fool]$ Reference Point (surveyors notch/etc)Top of CasingPurge Time (from/to) $105 - 1145$ Date/Time Sampled $010 [fool]$ $105 - 1145$ Purge Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$ $105 - 1145$ Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv); 4" = (0.653)(h)(\#Cv); 6" = (1.48)(h)(\#Cv)$                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                             |                                                                    |                                                  |                                |                                                                                             |                                           |                         |               |  |
| Purg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | e Volume<br>ulated Pu                                                                                                                       | e (gallons) fo<br>rge Volume                                       | or 2" = (0.16)<br>(gallons) <u>N</u>             | (h)(#Cv); 4<br>√A A            | " = (0.653<br>Actual Pur                                                                    | 3)(h)(#Cv);<br>ge Volume                  | 6" = (1.48<br>(gallons) | )(h)(#Cv)<br> |  |
| TIME       WATER       pH       COND       DO       TEMP       TURB.       ORP       CUM. VOL.         (2400 hr)       LEVEL       (units)       (mS/cm)       (mg/L) $^{\circ}$ C $\pm 10\%$ (mV)       (gal)         1004       feet) $\pm 0.1$ $\pm 3\%$ $\pm 10\%$ $\pm 10\%$ $\pm 10mV$ (gal)         1105       fl.12       fl.24 $94.9$ $5.10$ $2100$ $54$ $122$ 1113       fl.14       fl.22       fl.16 $94.9$ fl.55 $2100$ $54$ 1114       fl.22       fl.16 $94.9$ fl.50 $21000$ $54$ $122$ 1117       fl.14       fl.22       fl.16 $94.9$ fl.50 $1000$ $54$ $112$ 1117       fl.14       fl.22       fl.16 $94.9$ fl.50 $1000$ $54$ $112$ 1117       fl.24       fl.25       fl.16 $94.9$ fl.17 $640$ $124$ $144$ $1124$ $1124$ $1124$ $1124$ $1124$ $1124$ $1124$ $1124$ $1124$ $1124$ $1124$ |                                                                                                                                             |                                                                    |                                                  |                                |                                                                                             |                                           |                         |               |  |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Metho                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nt <u>C</u><br>dy (yes/no<br>od                                                                                                             | onSite Envir<br>() YES                                             | adyflow 2<br>onmental                            | Samp<br>Date<br>Field<br>Split | oling Equi<br>Sent to La<br>QC Samp<br>with (nan                                            | pment<br>ab<br>ble Number<br>ne(s)/organi | Grundfos I              | Readyflow 2   |  |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Vell Integrity <u>Oh-lacked clew of Idmis</u><br>temarks <u>bet pump int sty</u><br>ignature <u>Add Mis</u> Page of 1                       |                                                                    |                                                  |                                |                                                                                             |                                           |                         |               |  |

Sample #:\_\_\_\_\_

Well #: <u>MW-2</u> WSP-MW-02-GW- CG201

### Groundwater Sampling Field Data Sheet

| Project Numb<br>Project Name<br>Project Addre<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ject Number215-2662-004ject NameRI/FS WA State Penitentiaryject Address1313 North 13th AvenueWalla Walla, WA 99362WA State Dept. of Corrections |                                                                       |                                                                   |                                                                   |                                                    | 215-2662-004Date $b/20/24$ RI/FS WA State PenitentiaryLocationWA State Penitent1313 North 13th AvenueSampled ByMike Baxter/LaraWalla Walla, WA 99362Sampled ByMike Baxter/LaraWA State Dept. of CorrectionsPurged By(Same as above.) |                                                                           |                                   |          |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------|----------|--|
| Casing Diame                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ter: 2" _                                                                                                                                       | X_4"                                                                  | 6"                                                                | Oth                                                               | ner                                                |                                                                                                                                                                                                                                      | -                                                                         | , 1                               | ]        |  |
| Depth to Wate<br>Depth of Well<br>Reference Poin<br>Date/Time Sar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | er (feet)<br>(feet)<br>nt (survey<br>mpled                                                                                                      | 40.<br>50.<br>ors notch/eta<br>6/10/1                                 | 99<br>77<br>c) Top of Casin<br>01 1340                            | Purg<br>Date<br>ng Purg<br>Flow                                   | ge Vol. Mo<br>e Purged<br>ge Time (f<br>v Rate (ml | eas.Method<br>rom/to)<br>/min)                                                                                                                                                                                                       | Grad cyl &<br>6/1<br>[312<br>30                                           | & stop watch<br>10/2011<br>- 1355 |          |  |
| Purg<br>Purg<br>Calc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ge Volumo<br>ge Volumo<br>culated Pu                                                                                                            | e Calculation<br>e (gallons) fo<br>rge Volume                         | a: $(\pi r^2 h)(7.48 g)$<br>or 2" = (0.16)(1<br>(gallons) N/      | gal/ft <sup>3</sup> )(# (<br>h)(#Cv); 4<br>/A                     | Casing vol<br>?" = (0.653<br>Actual Pur            | umes)<br>3)(h)(#Cv);<br>ge Volume                                                                                                                                                                                                    | 6" = (1.48<br>(gallons)                                                   | )(h)(#Cv)<br>5                    |          |  |
| TIME       V         (2400 hr)       I         13147       I         1318       I         1322       I         1326       I         1336       I         1336       I         1336       I         1336       I         1336       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I       I         I <t< td=""><td>VATER<br/>LEVEL<br/>(feet) 2<br/>42.97<br/>45.91<br/>45.91<br/>41.00<br/>41.00</td><td>pH<br/>(units)<br/>± 0.1<br/><u>7,43</u><br/>7,30<br/>7,25<br/>7,27<br/>7,27</td><td>COND<br/>(mS/cm)<br/>± 3%<br/>99.9<br/>0.090 5/w<br/>99.9<br/>0.090 5/w</td><td>DO<br/>(mg/L)<br/>±10%<br/>10.34<br/>10.20<br/>10.09<br/>10.14<br/>10.09</td><td>TEMP<br/>°C<br/>16.84<br/>17.65<br/>18.52<br/>18.52</td><td>TURB.<br/>±10%<br/><u>193</u><br/><u>97.1</u><br/><u>72.6</u><br/><u>74.7</u><br/><u>51.7</u></td><td>ORP<br/>(mV)<br/>±10mV<br/><u>109</u><br/><u>63</u><br/><u>51</u><br/><u>53</u></td><td>CUM. VOL.<br/>(gal)</td><td></td></t<> | VATER<br>LEVEL<br>(feet) 2<br>42.97<br>45.91<br>45.91<br>41.00<br>41.00                                                                         | pH<br>(units)<br>± 0.1<br><u>7,43</u><br>7,30<br>7,25<br>7,27<br>7,27 | COND<br>(mS/cm)<br>± 3%<br>99.9<br>0.090 5/w<br>99.9<br>0.090 5/w | DO<br>(mg/L)<br>±10%<br>10.34<br>10.20<br>10.09<br>10.14<br>10.09 | TEMP<br>°C<br>16.84<br>17.65<br>18.52<br>18.52     | TURB.<br>±10%<br><u>193</u><br><u>97.1</u><br><u>72.6</u><br><u>74.7</u><br><u>51.7</u>                                                                                                                                              | ORP<br>(mV)<br>±10mV<br><u>109</u><br><u>63</u><br><u>51</u><br><u>53</u> | CUM. VOL.<br>(gal)                |          |  |
| Purge Equipme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ent <u>(</u>                                                                                                                                    | Grundfos Re                                                           | adyflow 2                                                         | Samj                                                              | pling Equ                                          | pment                                                                                                                                                                                                                                | Grundfos 1                                                                | Readyflow 2                       | 14       |  |
| Laboratory<br>Chain-of-Custo<br>Shipment Meth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ody (yes/m                                                                                                                                      | OnSite Envir<br>o) YES<br>FeelEx                                      | onmental                                                          | Date<br>Field<br>Split                                            | Sent to L<br>QC Samp<br>with (nan                  | ab<br>ple Number<br>ne(s)/organi                                                                                                                                                                                                     | zation) <u>N</u>                                                          | 1/A                               |          |  |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | OK-V<br>Set                                                                                                                                     | pump of 1                                                             | w of deliving<br>to', to ken                                      | 1146 546                                                          | Page                                               | ice White                                                                                                                                                                                                                            | not wor<br>of                                                             | King well. Me                     | 5/M610 æ |  |

Sample #:\_\_\_\_\_

Well #: <u>MW-3</u> WSP-MW-03-GW- <u>Clebol</u>

### Groundwater Sampling Field Data Sheet

| Project Num<br>Project Name<br>Project Addr<br>Client Name                                   | Project Number       215-2662-004         Project Name       RI/FS WA State Penitentiary         Project Address       1313 North 13th Avenue         Walla Walla, WA 99362       WA State Dept. of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                   |                                                                 | Date<br>Loc:<br>Sam<br>Purg                                                                                    | e<br>ation<br>ppled By<br>ged By                                 | WA State Mike Baxte (Same as a                                  | Penitentiar<br>er/Lara Lin<br>bove.)                                    | y<br>nde                 |  |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------|--|
| Casing Diam                                                                                  | eter: 2"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | X 4"                                                                                              | 6"                                                              | Oth                                                                                                            | ner                                                              |                                                                 |                                                                         | 1<br>2)                  |  |
| Depth to Wat<br>Depth of We<br>Reference Po<br>Date/Time Sa                                  | ter (feet)<br>ll (feet)<br>int (surveyo<br>ampled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | G<br>7G<br>ors notch/etc<br>G/L0/L                                                                | 20<br>20<br>c) Top of Cas<br>oll 1505                           | Purg<br>Date<br>ing Purg<br>Flow                                                                               | ge Vol. M<br>Purged<br>ge Time (f<br>v Rate (m                   | eas.Method<br>rom/to)<br>l/min)                                 | Grad cyl &<br>(6)<br>1432<br>34                                         | & stop watch<br><u> </u> |  |
| Pu<br>Pu<br>Ca                                                                               | rge Volume<br>rge Volume<br>lculated Pu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Calculation<br>(gallons) for<br>ge Volume                                                         | h: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons) N         | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br><u>V/A</u>                                                         | Casing vol<br>" = (0.65)<br>Actual Put                           | lumes)<br>3)(h)(#Cv);<br>rge Volume                             | 6" = (1.48<br>(gallons)                                                 | )(h)(#Cv)<br><u>3</u>    |  |
| TIME<br>(2400 hr)<br><u>1458</u><br><u>1446</u><br><u>1460</u><br><u>1464</u><br><u>1468</u> | WATER<br>LEVEL<br>(feet)<br>69.15<br>69.14<br>69.14<br>69.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | pH<br>(units)<br>± 0.1<br><u>7,17</u><br><u>6,96</u><br><u>6,96</u><br><u>6,85</u><br><u>6,85</u> | COND<br>(mS/cm)<br>± 3%<br>99,9<br>99,9<br>99,9<br>99,9<br>99,9 | DO<br>(mg/L)<br>±10%<br><u>7.61</u><br><u>7.61</u><br><u>7.94</u><br><u>7.04</u><br><u>7.04</u><br><u>6.79</u> | TEMP<br>°C<br>18.64<br>18.10<br>19.06<br>20.17<br>21.29<br>20.86 | TURB.<br>±10%<br>180<br>107<br>740<br>532<br>549<br>549<br>5549 | ORP<br>(mV)<br>±10mV<br><i>FF</i><br>61<br><i>h</i> ¥<br>66<br>67<br>67 | CUM. VOL.<br>(gal)       |  |
| Purge Equipn<br>Laboratory<br>Chain-of-Cus<br>Shipment Me                                    | Purge Equipment       Grundfos Readyflow 2       Sampling Equipment       Grundfos Readyflow 2         Laboratory       OnSite Environmental       Date Sent to Lab       Image: Complex Comple |                                                                                                   |                                                                 |                                                                                                                |                                                                  |                                                                 |                                                                         |                          |  |
| Well Integrity<br>Remarks<br>Signature                                                       | Well Integrity       OK-backed, clear of debries,         Semarks       Set pump of TT,         Signature       Mathematical Page of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                   |                                                                 |                                                                                                                |                                                                  |                                                                 |                                                                         |                          |  |

Sample #: WS

Well #: <u>MW-14</u> WSP-MW-14-GW- 6620

### Groundwater Sampling Field Data Sheet

| Project Number                                                                                                                                                                           | 215-2662-004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             | Date                                                                       | e                                                                           | 6/20/2011                        |                                                                |                    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------|--------------------|--|
| Project Name                                                                                                                                                                             | RI/FS WA State                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e Penitentiary                                              | Loc                                                                        | ation                                                                       | WA State                         | Penitentiar                                                    |                    |  |
| Project Address                                                                                                                                                                          | 1313 North 13th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | n Avenue                                                    |                                                                            |                                                                             |                                  |                                                                | <u> </u>           |  |
|                                                                                                                                                                                          | Walla Walla, W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | A 99362                                                     | Sam                                                                        | pled By                                                                     | Mike Baxt                        | er/Lara Lii                                                    | nde                |  |
| Client Name                                                                                                                                                                              | WA State Dept.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | of Corrections                                              | Purg                                                                       | ged By                                                                      | (Same as a                       | lbove.)                                                        |                    |  |
|                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                                                            | - 10 <sup>-</sup>                                                           |                                  | ,                                                              | 5                  |  |
| Casing Diameter                                                                                                                                                                          | : 2" <u>X</u> 4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6"                                                          | Otl                                                                        | ner                                                                         |                                  | -                                                              | A                  |  |
| Depth to Water (<br>Depth of Well (fa<br>Reference Point (<br>Date/Time Samp                                                                                                             | feet) (e<br>eet) 7<br>(surveyors notch/<br>led ()/20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4.79<br>4.43<br>etc) <u>Top of Cas</u><br>2011 [605         | Purg<br>Date<br>sing Purg<br>Flov                                          | ge Vol. Me<br>e Purged<br>ge Time (fr<br>v Rate (ml/                        | as.Method<br>rom/to)<br>/min)    | Grad cyl &<br>6/1<br>1531<br>4                                 | & stop watch<br>   |  |
| Purge<br>Purge<br>Calcul                                                                                                                                                                 | Volume Calculati<br>Volume (gallons)<br>ated Purge Volun                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ion: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)<br>ne (gallons) | 5 gal/ft <sup>3</sup> )(# 0<br>0(h)(#Cv); 4<br>N/A 2                       | Casing volu<br>?" = (0.653<br>Actual Pur                                    | umes)<br>)(h)(#Cv);<br>ge Volume | 6" = (1.48<br>(gallons)                                        | )(h)(#Cv)<br>      |  |
| TIME       WA         (2400 hr)       LE         (fi         1542       64         1550       64         1557       64         1557       64         1602       64         1602       64 | $\begin{array}{cccc} \text{ATER} & \text{pH} \\ \text{VEL} & (\text{units}) \\ \text{eet} & \pm 0.1 \\ \hline \begin{array}{c} 49 \\ \hline \hline 40 \\ \hline 70 $ | COND<br>(mS/cm)<br>± 3%<br>94<br>94<br>91<br>91<br>91<br>91 | DO<br>(mg/L)<br>±10%<br>II.33<br>II.02<br>10.55<br>IO.55<br>IO.65<br>IO.65 | TEMP<br>°C<br>18,24<br>17,551<br>17,554<br>17,49<br>17,49<br>17,49<br>17,49 | TURB.<br>±10%                    | ORP<br>(mV)<br>±10mV<br>75<br>53<br>67<br>71<br>71<br>70<br>76 | CUM. VOL.<br>(gal) |  |
| Purge Equipment                                                                                                                                                                          | Grundfos F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Readyflow 2                                                 | Samj                                                                       | pling Equi                                                                  | pment                            | Grundfos I                                                     | Readyflow 2        |  |
| Laboratory<br>Chain-of-Custody<br>Shipment Method                                                                                                                                        | OnSite Env<br>(yes/no) YES<br>I Fed Fx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | vironmental                                                 | Date<br>Field<br>Split                                                     | Sent to La<br>QC Samp<br>with (nam                                          | ib<br>ble Number<br>he(s)/organ  | ization) <u>N</u>                                              | /A                 |  |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                   | Oh-Jocked,<br>Set junities of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | dear of dep                                                 | 16.                                                                        | Page                                                                        | 1                                | of                                                             |                    |  |

Sample #:\_\_\_\_

Well #: <u>MW-6</u> WSP-MW-06-GW- ©(e2())

Groundwater Sampling Field Data Sheet

| Project Nur<br>Project Nar<br>Project Add                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Project Number215-2662-004Project NameRI/FS WA State PenitentiaryProject Address1313 North 13th Avenue |                             |                                         |                           | ation                    | WA State                | <u>le   1- / 10</u><br>Penitentiar | <u>[(</u><br>у     |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------|---------------------------|--------------------------|-------------------------|------------------------------------|--------------------|--|
| Client Nam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $\frac{\text{Walla}}{\text{WA S}}$                                                                     | Walla, WA<br>tate Dept. o   | f Corrections                           | Sam                       | pled By<br>ged By        | Mike Baxt<br>(Same as a | er/Lara Liı<br>bove.)              | nde                |  |
| Casing Dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | meter: 2"                                                                                              | X_4"                        | 6"                                      | Oth                       | ier                      |                         |                                    |                    |  |
| Depth to Water (feet) <b>13.04</b> Purge Vol. Meas.Method Grad cyl & stop watchDepth of Well (feet) <b>33.15</b> Date Purged $(4/1/101)$ Reference Point (surveyors notch/etc) Top of CasingPurge Time (from/to) $0139-6516$ Date/Time Sampled $(4/1/101)$ $010$ $0139-6516$ Purge Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ft}^3)(\# Casing volumes)$ $016(52)(h)(\#Cy), 6'' = (1.48)(h)(\#Cy)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                        |                             |                                         |                           |                          |                         |                                    |                    |  |
| P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purge Volume<br>Calculated Pu                                                                          | e (gallons) f<br>rge Volume | or $2'' = (0.16)$<br>(gallons) <u>N</u> | (h)(#Cv); 4<br><u>V/A</u> | " = (0.653<br>Actual Pur | )(h)(#Cv);<br>ge Volume | 6" = (1.48<br>(gallons)            | )(h)(#Cv)<br>3.6   |  |
| Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv);         Calculated Purge Volume (gallons)       N/A       Actual Purge Volume (gallons) $3.6$ TIME       WATER       pH       COND       DO       TEMP       TURB.       ORP       CUM. VOL.         (2400 hr)       LEVEL       (units)       (mS/cm)       (mg/L)       °C $\pm 10\%$ $\pm 10\%$ (gal) $\circ$ ftet $\pm 0.1$ $\pm 3\%$ $\pm 10\%$ °C $\pm 10\%$ (mV)       (gal) $\circ$ ftet $\pm 0.1$ $\pm 3\%$ $\pm 10\%$ $\circ$ C $\pm 10\%$ (mV)       (gal) $\circ$ ftet $23.27$ $6.65$ 94.9 $1.02$ $15.71$ $71000$ $24\%$ $10mV$ $\circ$ ftet $23.27$ $6.657$ $93.2$ $0.64$ $15.47$ $7100$ $24\%$ $10mV$ |                                                                                                        |                             |                                         |                           |                          |                         |                                    | CUM. VOL.<br>(gal) |  |
| Purge Equipment       Grundfos Readyflow 2       Sampling Equipment       Grundfos Readyflow 2         Laboratory       OnSite Environmental       Date Sent to Lab $a/a/a/a/a/a/a/a/a/a/a/a/a/a/a/a/a/a/a/$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                        |                             |                                         |                           |                          |                         |                                    |                    |  |
| Well Integrity OK-locked, clear of debris.<br>Remarks <u>Set, pump at 31</u> , Field Duplicate collected (W6P-MW-DUP-GW-06/11),<br>Signature <u>UH////</u> Page of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |                             |                                         |                           |                          |                         |                                    |                    |  |

Sample #:\_\_\_\_

Well #: <u>MW-7</u> WSP-MW-07-GW- *Oloh*  5

u.

\*\*1

#### **Groundwater Sampling Field Data Sheet**

| Project Nur                                                                                                        | nber 215-2                                                                                                | 662-004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Date                                                                                                                                                                                                                                   | 2                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6/1/10                                                                                                                                                                                      | t I                |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Project Nan                                                                                                        | ne RI/FS                                                                                                  | WA State ]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Penitentiary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Loca                                                                                                                                                                                                                                   | ation                                                                                                                           | WA State                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Penitentiar                                                                                                                                                                                 | v                  |
| Project Add                                                                                                        | ress 1313                                                                                                 | North 13th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Avenue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2                                                                                                                                                                                                                                      |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                           | 5                  |
|                                                                                                                    | Walla                                                                                                     | walla, WA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 99362                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Sam                                                                                                                                                                                                                                    | pled By                                                                                                                         | Mike Baxt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | er/Lara Lii                                                                                                                                                                                 | nde                |
| Client Name                                                                                                        | WAS                                                                                                       | State Dept. o                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Purg                                                                                                                                                                                                                                   | ged By                                                                                                                          | (Same as a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | bove.)                                                                                                                                                                                      |                    |
|                                                                                                                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ,                                                                                                                                                                                           |                    |
| Casing Diar                                                                                                        | meter: 2"                                                                                                 | X 4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Oth                                                                                                                                                                                                                                    | ner                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                             | is<br>T            |
| Depth to Wa                                                                                                        | ater (feet)                                                                                               | 152                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Purg                                                                                                                                                                                                                                   | e Vol. Me                                                                                                                       | eas.Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Grad cyl &                                                                                                                                                                                  | & stop watch       |
| Depth of W                                                                                                         | ell (feet)                                                                                                | 61,0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date                                                                                                                                                                                                                                   | Purged                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 61                                                                                                                                                                                          | 21/2011            |
| Reference P                                                                                                        | oint (survey                                                                                              | ors notch/et                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | c) Top of Cas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | sing Purg                                                                                                                                                                                                                              | e Time (fi                                                                                                                      | rom/to)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 081                                                                                                                                                                                         | 53-0945            |
| Date/Time S                                                                                                        | Sampled                                                                                                   | 6/21/2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 011 0940                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | · Flow                                                                                                                                                                                                                                 | v Rate (ml                                                                                                                      | /min)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4                                                                                                                                                                                           | 0D                 |
|                                                                                                                    | 21.5                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                             |                    |
| p                                                                                                                  | urge Volum                                                                                                | e Calculatio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | n: $(\pi r^2 h)(7.48)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | $3 \text{ gal/ft}^{3})(\# ($                                                                                                                                                                                                           | asing vol                                                                                                                       | umes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                                                                                                                                                                           |                    |
| P <sup>-</sup>                                                                                                     | urge Volum<br>urge Volum                                                                                  | e (gallons) f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | For $2'' = (0.16)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (h)(#Cv): 4                                                                                                                                                                                                                            | " = (0.65)                                                                                                                      | 3)(h)(#Cv):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6'' = (1.48)                                                                                                                                                                                | (h)(#Cv)           |
| C                                                                                                                  | alculated Pu                                                                                              | irge Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | (gallons)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A A                                                                                                                                                                                                                                  | Actual Pur                                                                                                                      | ge Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | (gallons)                                                                                                                                                                                   | 3.25               |
|                                                                                                                    |                                                                                                           | U                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        |                                                                                                                                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                             | 1.14               |
|                                                                                                                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                             |                    |
| TIME                                                                                                               | WATER                                                                                                     | ρH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | COND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DO                                                                                                                                                                                                                                     | TEMP                                                                                                                            | TURB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ORP                                                                                                                                                                                         | CUM. VOL           |
| TIME<br>(2400 hr)                                                                                                  | WATER<br>LEVEL                                                                                            | pH<br>(units)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COND<br>(mS/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DO<br>(mg/L)                                                                                                                                                                                                                           | TEMP<br>°C                                                                                                                      | TURB.<br>±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ORP<br>(mV)                                                                                                                                                                                 | CUM. VOL.<br>(gal) |
| TIME<br>(2400 hr)                                                                                                  | WATER<br>LEVEL<br>(feet)                                                                                  | pH<br>(units)<br>± 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COND<br>(mS/cm)<br>± 3%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%                                                                                                                                                                                                                   | TEMP<br>°C                                                                                                                      | TURB.<br>±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ORP<br>(mV)<br>±10mV                                                                                                                                                                        | CUM. VOL.<br>(gal) |
| TIME<br>(2400 hr)                                                                                                  | WATER<br>LEVEL<br>(feet)                                                                                  | pH<br>(units)<br>± 0.1<br>6:74                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | COND<br>(mS/cm)<br>± 3%<br>999                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | DO<br>(mg/L)<br>±10%                                                                                                                                                                                                                   | TEMP<br>°C                                                                                                                      | TURB.<br>±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ORP<br>(mV)<br>±10mV                                                                                                                                                                        | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)                                                                                                  | WATER<br>LEVEL<br>(feet)                                                                                  | pH<br>(units)<br>± 0.1<br><u>4.44</u><br>6.84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COND<br>(mS/cm)<br>± 3%<br>99.9<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><del>7.33</del>                                                                                                                                                                                 | TEMP<br>°C<br>16.44                                                                                                             | TURB.<br>±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ORP<br>(mV)<br>±10mV<br>120<br>73                                                                                                                                                           | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>0755<br>0859<br>0903                                                                          | WATER<br>LEVEL<br>(feet)<br>54.0<br>54.0                                                                  | pH<br>(units)<br>± 0.1<br><u>6.74</u><br><u>6.74</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | COND<br>(mS/cm)<br>± 3%<br><u>999</u><br><u>999</u><br><u>999</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><u>7.35</u><br><u>5.55</u>                                                                                                                                                                      | TEMP<br>°C<br>1644<br>17.30<br>18.38                                                                                            | TURB.<br>±10%<br>7000<br>9840<br>5440                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72                                                                                                                                                     | CUM. VOL.<br>(gal) |
| TIME<br>(2400 hr)<br>07054<br>0859<br>0903<br>0907                                                                 | WATER<br>LEVEL<br>(feet)<br>54.0<br>54.0<br>54.0                                                          | $pH$ (units) $\pm 0.1$ $4.74$ $6.74$ $6.93$ $6.84$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ \underline{999} \\ \underline{999} \\ \underline{999} \\ \underline{999} \\ \underline{999} \\ \underline{999} \\ \underline{9999} \\ \underline{99999} \\ \underline{9999} \\ \underline{9999} \\ 99$   | DO<br>(mg/L)<br>±10%<br>T.33<br>T.33<br>T.57<br>T.50                                                                                                                                                                                   | TEMP<br>°C<br>1646<br>17.30<br>18.38<br>15.95                                                                                   | TURB.<br>±10%<br>?000<br>9820<br>845.0<br>FHT.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72<br>72<br>76                                                                                                                                         | CUM. VOL.<br>(gal) |
| TIME<br>(2400 hr)<br>07554<br>0854<br>0854<br>0907<br>0907                                                         | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.00<br>52.00<br>52.00                                     | pH<br>(units)<br>± 0.1<br><u>6.74</u><br><u>6.93</u><br><u>6.93</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ \underline{99.9} \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><u>7.33</u><br><u>7.35</u><br><u>7.35</u><br><u>7.40</u><br><u>8.15</u>                                                                                                                         | TEMP<br>°C<br>17.30<br>18.38<br>15.45<br>19.34                                                                                  | TURB.<br>±10%<br><u>~000</u><br><u>9820</u><br><u>~1620</u><br><u>~147.0</u><br><u>~747.0</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ORP<br>(mV)<br>±10mV<br>120<br>73<br>73<br>72<br>75                                                                                                                                         | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07555<br>0755<br>0765<br>0907<br>0915                                                         | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.00<br>52.00                                              | $ \begin{array}{c} pH \\ (units) \\ \pm 0.1 \\ \hline 0.784 \\ \hline 0.784 \\ \hline 0.93 \\ \hline 0.86 \\ \hline 0.93 \\ \hline 0.86 \\ \hline 0.88 \\ \hline 0.88$ | COND<br>(mS/cm)<br>± 3%<br>99.9<br>99.9<br>99.9<br>99.9<br>99.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><u>7.33</u><br><u>7.35</u><br><u>7.35</u><br><u>7.55</u><br><u>8.20</u><br><u>5.15</u><br><u>8.05</u>                                                                                           | TEMP<br>°C<br>16.44<br>17.30<br>18.38<br>15.98<br>19.63                                                                         | TURB.<br>±10%<br>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ORP<br>(mV)<br>±10mV<br><u>140</u><br>73<br>72<br>75<br>68<br>60                                                                                                                            | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07555<br>07559<br>0759<br>0707<br>0907<br>0915<br>0919                                        | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.10                                              | $pH (units) \pm 0.1 \\ \hline u.H_{2} \\ u.H_{2} \\ \hline u.H_{2} \\ u$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ \underline{99.9} \\$ | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><u>7.35</u><br><u>7.35</u><br><u>7.35</u><br><u>7.35</u><br><u>8.15</u><br><u>8.05</u><br><u>7.06</u><br><u>7.06</u>                                                                            | TEMP<br>°C<br>17.30<br>18.38<br>15.98<br>19.34<br>19.53<br>19.65<br>19.66                                                       | TURB.<br>±10%<br>7600<br>9820<br>9820<br>9820<br>9820<br>5450<br>5450<br>5450<br>5450<br>5450<br>5450<br>5420                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ORP<br>(mV)<br>±10mV<br>140<br>73<br>72<br>72<br>70<br>72<br>70<br>72<br>70<br>72<br>70<br>72<br>70<br>72                                                                                   | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>0755<br>0755<br>0755<br>0757<br>0907<br>0915<br>0915<br>0915<br>0913                          | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.09                                              | $pH (units) \pm 0.1 \\ 4.4L \\ 6.74 \\ 6.74 \\ 6.93 \\ 6.93 \\ 6.93 \\ 6.93 \\ 6.95 \\ 6.95 \\ 6.95 \\ 6.95 \\ 6.95 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.89 \\ 6.$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ \hline 99.9 \\ \hline $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br>5.13<br>7.33<br>5.45<br>5.45<br>5.05<br>7.06<br>7.06<br>7.06                                                                                                                                                   | TEMP<br>°C<br>17.30<br>18.38<br>15.45<br>19.34<br>19.53<br>19.24<br>19.24<br>19.24<br>21.61                                     | TURB.<br>±10%<br>7000<br>9820<br>9820<br>9820<br>9820<br>5420<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ORP<br>(mV)<br>±10mV<br><u>100</u><br><del>73</del><br><del>72</del><br><del>70</del><br><del>72</del><br><del>70</del><br><del>72</del><br><del>70</del><br><del>74</del><br><del>40</del> | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07554<br>0903<br>0907<br>09107<br>09115<br>09115<br>09119<br>09123<br>09123                   | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.00<br>52.00<br>52.10                            | pH<br>(units)<br>± 0.1<br><u>6.74</u><br><u>6.93</u><br><u>6.76</u><br><u>6.93</u><br><u>6.76</u><br><u>6.86</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ \hline 99.9 \\ \hline $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br>T.33<br>T.33<br>T.33<br>T.35<br>T.35<br>T.35<br>T.20<br>T.15<br>T.06<br>T.06<br>T.66<br>T.66                                                                                                                   | TEMP<br>°C<br>17.30<br>18.38<br>15.95<br>19.53<br>19.53<br>19.53<br>19.53<br>19.26<br>21.61<br>21.91                            | TURB.<br>±10%<br>2000<br>9820<br>845.0<br>545.0<br>545.0<br>547.0<br>568.0<br>427.0<br>102.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72<br>75<br>60<br>37<br>40<br>55                                                                                                                       | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07554<br>0854<br>0854<br>0907<br>0915<br>0915<br>0915<br>0915<br>0913<br>0913                 | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.00<br>52.00<br>52.00<br>52.00<br>52.10<br>52.10 | pH<br>(units)<br>± 0.1<br><u>6.84</u><br><u>6.93</u><br><u>6.86</u><br><u>6.93</u><br><u>6.86</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br>5.13<br>7.33<br>7.33<br>7.52<br>8.52<br>5.15<br>8.05<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06                                                                                           | TEMP<br>°C<br>1646<br>17.30<br>18.38<br>15.98<br>19.68<br>19.68<br>19.65<br>19.65<br>19.64<br>21.61<br>22.19<br>21.07           | TURB.<br>±10%<br>2000<br>9820<br>845.0<br>545.0<br>545.0<br>565.0<br>427.0<br>102.0<br>67.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72<br>75<br>68<br>60<br>37<br>40<br>55<br>53                                                                                                           | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07555<br>0907<br>0907<br>0915<br>0915<br>0915<br>0915<br>0912<br>0915<br>0912<br>0915         | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.00<br>52.10<br>52.10<br>52.10<br>52.10<br>52.00<br>52.00          | pH<br>(units)<br>± 0.1<br><u>4.42</u><br><u>6.84</u><br><u>6.93</u><br><u>6.86</u><br><u>6.93</u><br><u>6.85</u><br><u>6.85</u><br><u>6.86</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ \underline{99.9} \\$ | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><u>7.33</u><br><u>7.35</u><br><u>7.45</u><br><u>7.40</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.15</u><br><u>7.66</u><br><u>7.66</u><br><u>7.16</u> | TEMP<br>°C<br>16.46<br>17.30<br>18.38<br>15.98<br>19.34<br>19.53<br>19.26<br>21.61<br>21.07<br>21.07<br>21.07                   | TURB.<br>±10%<br>2000<br>9820<br>845.0<br>545.0<br>545.0<br>547.0<br>547.0<br>547.0<br>568.0<br>427.0<br>102.0<br>67.1<br>78.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ORP<br>(mV)<br>±10mV<br>120<br>73<br>73<br>73<br>75<br>67<br>60<br>55<br>55<br>64                                                                                                           | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07555<br>0765<br>0767<br>0907<br>0915<br>0915<br>0915<br>0915<br>0915<br>0915<br>0915<br>0915 | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.10<br>52.10<br>52.10<br>52.10<br>52.09          | $\begin{array}{c} pH \\ (units) \\ \pm 0.1 \\ \hline \\ 0.84 \\ \hline \\ 0.84 \\ \hline \\ 0.84 \\ \hline \\ 0.85 \\ \hline \hline \hline \hline \\ 0.85 \\ \hline \hline \hline \\ 0.85 \\ \hline \hline \hline \hline \hline \\ 0.85 \\ \hline $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ \hline 99.9 \\ \hline $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br>5.13<br>7.35<br>5.45<br>7.20<br>7.15<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06<br>7.06<br>7.16                                                                                                           | TEMP<br>°C<br>17.30<br>18.38<br>15.95<br>19.34<br>19.53<br>19.54<br>19.55<br>19.26<br>21.61<br>21.07<br>21.07<br>21.07<br>21.07 | TURB.<br>±10%<br>7000<br>9820<br>9820<br>9820<br>5450<br>5450<br>5450<br>5450<br>5450<br>5450<br>5650<br>4220<br>1020<br>6412<br>7512                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72<br>75<br>68<br>60<br>37<br>40<br>55<br>53<br>64                                                                                                     | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07555<br>0755<br>0707<br>0907<br>0915<br>0915<br>0915<br>0913<br>0913<br>0913<br>0913         | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.10<br>52.10<br>52.10<br>52.10<br>52.09          | pH<br>(units)<br>± 0.1<br><u>6.74</u><br><u>6.93</u><br><u>6.84</u><br><u>6.93</u><br><u>6.86</u><br><u>6.85</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ \hline 99.9 \\ \hline $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br><u>5.13</u><br><u>7.33</u><br><u>5.42</u><br><u>5.42</u><br><u>5.15</u><br><u>5.05</u><br><u>7.06</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.66</u><br><u>7.16</u> | TEMP<br>°C<br>17.30<br>18.38<br>15.45<br>19.34<br>19.53<br>19.24<br>21.61<br>22.9<br>21.07<br>21.07<br>21.07                    | TURB.<br>±10%<br>2000<br>9820<br>9820<br>9820<br>5450<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5770<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700<br>5700 | ORP<br>(mV)<br>±10mV<br>100<br>73<br>72<br>70<br>72<br>70<br>72<br>70<br>72<br>70<br>72<br>70<br>75<br>68<br>69<br>55<br>69<br>57                                                           | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>0755<br>0755<br>0707<br>0907<br>0915<br>0915<br>0915<br>0913<br>0913<br>0913                  | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.00<br>52.10<br>52.00<br>52.00<br>52.00          | pH<br>(units)<br>± 0.1<br><u>6.74</u><br><u>6.754</u><br><u>6.93</u><br><u>6.756</u><br><u>6.756</u><br><u>6.756</u><br><u>6.756</u><br><u>6.757</u><br><u>6.757</u><br><u>6.757</u><br><u>6.757</u><br><u>6.757</u><br><u>6.757</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br>T.33<br>T.33<br>T.40<br>T.40<br>T.40<br>T.06<br>T.06<br>T.06<br>T.06<br>T.06<br>T.06<br>T.06<br>T.0                                                                                                            | TEMP<br>°C<br>17.30<br>18.38<br>18.38<br>18.48<br>19.63<br>19.63<br>19.64<br>21.61<br>22.19<br>21.07<br>21.07<br>21.07          | TURB.<br>±10%<br>2000<br>97200<br>9720<br>545.0<br>545.0<br>568.0<br>4270<br>102.0<br>67.1<br>78.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72<br>75<br>68<br>60<br>37<br>40<br>55<br>55<br>64                                                                                                     | CUM. VOL<br>(gal)  |
| TIME<br>(2400 hr)<br>07554<br>0854<br>0854<br>0854<br>0854<br>0855                                                 | WATER<br>LEVEL<br>(feet)<br>52.10<br>52.10<br>52.10<br>52.00<br>52.10<br>52.00<br>52.00<br>52.00          | pH<br>(units)<br>± 0.1<br><u>6.74</u><br><u>6.93</u><br><u>6.86</u><br><u>6.86</u><br><u>6.86</u><br><u>6.86</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u><br><u>6.89</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ 99.9 \\ $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br>T.33<br>T.33<br>T.33<br>T.35<br>T.35<br>T.20<br>T.15<br>T.06<br>T.06<br>T.06<br>T.06<br>T.06<br>T.06<br>T.06<br>T.16                                                                                           | TEMP<br>°C<br>1646<br>17.30<br>18.38<br>15.98<br>19.63<br>19.63<br>19.63<br>19.64<br>21.61<br>22.19<br>21.07<br>21.07<br>21.07  | TURB.<br>±10%<br>7000<br>9820<br>845.0<br>545.0<br>547.0<br>568.0<br>4270<br>101.0<br>102.0<br>67.1<br>78.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ORP<br>(mV)<br>±10mV<br>120<br>73<br>72<br>75<br>68<br>60<br>37<br>40<br>55<br>53<br>64                                                                                                     | CUM. VOL<br>(gal)  |

| Purge Equipment     | Grundfos Readyflow 2 | Sampling Equipment      | Grundfos Readyflow 2  |
|---------------------|----------------------|-------------------------|-----------------------|
| Laboratory          | OnSite Environmental | Date Sent to Lab        | 4/11/2011             |
| Chain-of-Custody (y | ves/no) YES          | Field QC Sample Numb    | ber                   |
| Shipment Method     | FedEx                | Split with (name(s)/org | anization) <u>N/A</u> |

| Well Integrity | OK-locked, dear of doris. |     |      |    |   |
|----------------|---------------------------|-----|------|----|---|
| Remarks        | Bat incumin art IFI       | 1.0 |      |    |   |
| Signature      | ANT                       |     | Page | of | 1 |
|                |                           |     |      | -  |   |

Sample #: W

Well #: <u>MW-8</u> WSP-MW-08-GW- <u>O@2</u>[[]

#### Groundwater Sampling Field Data Sheet

| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                               | r <u>215-20</u><br><u>RI/FS</u><br>3 1313 1<br><u>Walla</u><br>WA S             | 562-004<br>WA State F<br>North 13th A<br>Walla, WA<br>tate Dept. o                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Penitentiary<br>Avenue<br>99362<br>f Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Date<br>Loc<br>Sam<br>Purş                                                                      | e<br>ation<br>npled By<br>ged By                                                                         | WA State Mike Baxt                                                 | Penitentiar<br>er/Lara Lin<br>bove:)                                              | y<br>nde           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|
| Casing Diamete                                                                                                                                                                                                                                                                                                 | er: 2" _                                                                        | X_4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Ot]                                                                                             | ner                                                                                                      |                                                                    |                                                                                   | а                  |
| Depth to Water<br>Depth of Well (<br>Reference Point<br>Date/Time Sam<br>Purge<br>Purge<br>Calcu                                                                                                                                                                                                               | (feet) _<br>feet) _<br>c (surveyo<br>pled _<br>v Volume<br>v Volume<br>lated Pu | The second secon | $\frac{17}{10}$ c) <u>Top of Cas</u><br>c) <u>Top of Cas</u><br>c) (1000<br>(1000)<br>(main constraints)<br>(main constraints)<br>(                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purg<br>Date<br>Purg<br>Flov<br>gal/ft <sup>3</sup> )(# (<br>(h)(#Cv); 4<br>J/A                 | ge Vol. Mo<br>e Purged<br>ge Time (f<br>v Rate (ml<br>Casing vol<br>casing vol<br>casing vol             | eas.Method<br>rom/to)<br>/min)<br>umes)<br>3)(h)(#Cv);             | Grad cyl &<br>(6/1)<br>1025<br>40<br>6" = (1.48<br>(gallons)                      | 2 stop watch       |
|                                                                                                                                                                                                                                                                                                                |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                 |                                                                                                          |                                                                    | (ganons)                                                                          | _ <u>5</u> ,b      |
| TIME       W.         (2400 hr)       L1         (029       ()         1053       B         1057       B         1041       BI         1044       BI         1045       BI         1047       BI         1047       BI         1057       BI         1057       BI         1057       BI         1057       BI | ATER<br>EVEL<br>feet)<br>5.12<br>5.12<br>5.12<br>5.12                           | pH<br>(units)<br>± 0.1<br><u>7.40</u><br><u>7.40</u><br><u>7.40</u><br><u>7.23</u><br><u>7.23</u><br><u>7.23</u><br><u>7.23</u><br><u>7.23</u><br><u>7.25</u><br><u>7.23</u><br><u>7.25</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ \hline qq, q \\ \hline q0 \\ \hline qq, q \\ qq, q \\ \hline qq, q \\ \hline qq, q \\ qq, q \\ qq, q \\  qq, q \\ qq, q \\$ | DO<br>(mg/L)<br>±10%<br>10.72<br>9.35<br>10.15<br>9.35<br>10.15<br>9.58<br>9.58<br>9.56<br>9.52 | TEMP<br>°C<br>Ve.42<br>I.(e.40<br>IX.150<br>IX.150<br>IX.150<br>IX.151<br>IV61<br>Z0.31<br>IV61<br>Z0.15 | TURB.<br>±10%<br>> 000<br>> 000<br>000<br>000<br>000<br>000<br>000 | ORP<br>(mV)<br>±10mV<br>57<br>133<br>131<br>137<br>137<br>10<br>172<br>125<br>125 | CUM. VOL.<br>(gal) |
| Laboratory<br>Chain-of-Custod<br>Shipment Metho                                                                                                                                                                                                                                                                | ly (yes/no                                                                      | nSite Envir<br>o) YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | onmental                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Date<br>Date<br>Field<br>Split                                                                  | Sent to L<br>QC Samp<br>with (nan                                                                        | ab<br>ole Number<br>ne(s)/organi                                   | zation) <u>N</u>                                                                  | Readyflow 2        |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                         | ok-la<br>Sot pi                                                                 | why at 91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | r of Jebrie                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | . Some.5                                                                                        | Ending Wo                                                                                                | tar.                                                               | of                                                                                | 1                  |

Sample #:\_\_\_\_

Well #: <u>MW-13</u> WSP-MW-13-GW- C(2)

Groundwater Sampling Field Data Sheet

| · · · · · · · · · · · · · · · · · · · |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
|---------------------------------------|-------------------------------------------------------------------------|--------------|------------------------|------------------|---------------------|------------|-------------------|-----------------------------------------|--|
| Project Number                        | Project Number 215-2662-004                                             |              |                        |                  |                     | (          | 0/1/1/01          | 2.4                                     |  |
| Project Name                          | RI/FS                                                                   | WA State I   | Penitentiary           | Loc              | ation               | WA State I | Penitentiar       | y                                       |  |
| Project Addres                        | ss 1313 1                                                               | North 13th   | Avenue                 |                  |                     |            |                   |                                         |  |
|                                       | Walla                                                                   | Walla, WA    | . 99362                | San              | npled By            | Mike Baxte | er/Lara Lir       | nde                                     |  |
| Client Name                           | WA St                                                                   | tate Dept. o | f Corrections          | Pur              | ged By              | (Same as a | bove.)            |                                         |  |
|                                       |                                                                         | 2            |                        |                  |                     |            |                   |                                         |  |
|                                       |                                                                         | 37 433       |                        |                  | 1                   |            |                   |                                         |  |
| Casing Diame                          | ter: 2"                                                                 | <u> </u>     | 6"                     | Ot               | her                 |            |                   |                                         |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
| Depth to Wate                         | Depth to Water (feet) To 01 Purge Vol Meas Method Grad cyl & stop watch |              |                        |                  |                     |            |                   |                                         |  |
| Depth of Well                         | (feet) =                                                                | LIU<br>LV    | an                     | Ful<br>Date      | 20 VOI. IVIO        | as.memou   | Grad Cyr o        | k stop waten                            |  |
| Reference Poir                        | (ICCI)                                                                  | vrs notch/et | c) Top of Cas          | Date<br>Date     | ruigeu<br>m Time (f | rom/to)    | 1124              | 1/201                                   |  |
| Date/Time Sar                         | nnled                                                                   |              | 10p of Cas             | Flor             | y Rate (ml          | (min)      | 1136              | -1210                                   |  |
| Date/Time Sal.                        | iipicu _                                                                | 4/Lyn        | 211/211                | FI0V             | w Kate (III         | /          | 30                |                                         |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
| Purg                                  | e Volume                                                                | Calculation  | n: $(\pi r^2 h)(7.48)$ | $ga1/ft^{3})(#)$ | Casing vol          | umes)      |                   |                                         |  |
| Pure                                  | e Volume                                                                | (gallons) f  | or $2'' = (0.16)$      | (h)(#Cv)         | 4'' = (0.65')       | 3)(h)(#Cv) | $6'' = (1 \ 48')$ | (h)(#Cv)                                |  |
| Calc                                  | culated Pu                                                              | ge Volume    | (gallons)              | V/A              | Actual Pur          | ge Volume  | (gallons)         | 3                                       |  |
|                                       |                                                                         |              |                        |                  |                     | 8          | (8)               |                                         |  |
| [                                     |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
| TIME V                                | VATER                                                                   | pН           | COND                   | DO               | TEMP                | TURB.      | ORP               | CUM. VOL.                               |  |
| (2400 hr) I                           | LEVEL                                                                   | (units)      | (mS/cm)                | (mg/L)           | °C                  | ±10%       | (mV)              | (gal)                                   |  |
|                                       | (feet)                                                                  | $\pm 0.1$    | ± 3%                   | ±10%             |                     |            | $\pm 10 mV$       |                                         |  |
| 1139 1                                | 51.35                                                                   | 7.22         | 99,9                   | 7.31             | 17.94               | 2000       | 116               |                                         |  |
| 1143 9                                | 51.26                                                                   | 7.03         | 99.9                   | 6.10             | 18.69               | 7/000      | 104               |                                         |  |
| 1147 1                                | 50.05                                                                   | 6.90         | 99.9                   | 5,99             | 20.03               | 71000      | 108               |                                         |  |
| 161 8                                 | 50.05                                                                   | 6,89         | 99,9                   | 6.02             | 19.42               | 798.0      | 86                | - 14 - 14 - 14 - 14 - 14 - 14 - 14 - 14 |  |
| 1165 1                                | 50.07                                                                   | Last         | 99.9                   | 6.50             | 19.64               | 843,0      | 89                | 121                                     |  |
| 1159 1                                | 10.08                                                                   | Ce. The      | 99,9                   | 6.00             | 19.66               | 296.0      | 78                |                                         |  |
| 1203 E                                | 50.01                                                                   | 6.82         | 99.9                   | 5,73             | 19,49               | 233.0      | T                 |                                         |  |
| 1207                                  |                                                                         | 6.85         | 99.9                   | 5.81             | 20.27               | 2590       | 87                |                                         |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   | 50                                      |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
|                                       | 2                                                                       |              |                        |                  |                     | 2          |                   |                                         |  |
| · · · · · · · · · · · · · · · · · · · |                                                                         |              |                        |                  |                     |            |                   | · · ·                                   |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
|                                       |                                                                         |              |                        |                  |                     | · ·        |                   |                                         |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
|                                       |                                                                         | 10 -         | 1.0                    |                  |                     |            |                   |                                         |  |
| Purge Equipme                         | ent $\underline{G}$                                                     | rundtos Re   | adyflow 2              | Sam              | pling Equi          | pment (    | Grundfos I        | Readyflow 2                             |  |
| Laboratory                            | 0                                                                       | nCita Envi   | a mere a mé a 1        | Dete             | Cant da T           | -1-        | P.                | 1111 0.11                               |  |
| Chain of Custo                        | U<br>du (unal-                                                          | VES          | ommental               |                  | sent to L           |            | - U               | 124201                                  |  |
| Chann-or-Cusic                        | hain-of-Custody (yes/no) YES Field QC Sample Number                     |              |                        |                  |                     |            |                   |                                         |  |
| Simplifient Meth                      | Shipment Method Split with (name(s)/organization) N/A                   |              |                        |                  |                     |            |                   |                                         |  |
|                                       |                                                                         |              |                        |                  |                     |            |                   |                                         |  |
| Well Integrity                        | G1/2 - 1                                                                | ached        | long told              | and              |                     | × ×        | 2                 |                                         |  |
| Remarks                               | Set.                                                                    | Cherry C     | I' a open              |                  |                     |            |                   |                                         |  |
| Signature                             | 119                                                                     | MAR CO B     | ( e                    |                  | Page                |            | of                |                                         |  |

Sample #:\_\_\_\_\_

Well #: <u>MW-12</u> WSP-MW-12-GW- <u>Co24</u>

#### Groundwater Sampling Field Data Sheet

| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 215-2662-004<br>RI/FS WA State<br>1313 North 13th<br>Walla Walla, WA<br>WA State Dept. | Penitentiary<br>Avenue<br>A 99362<br>of Corrections             | Date<br>Loca<br>Sam<br>Purg                                          | ation<br>pled By<br>ged By                                       | WA State Penitentiary<br>Mike Baxter/Lara Linde<br>(Same as above.)   |                                                            | y<br>nde           |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------|--------------------|--|--|
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | :: 2" <u>X</u> 4"                                                                      | 6"                                                              | Oth                                                                  | ier                                                              |                                                                       | h                                                          |                    |  |  |
| Depth to Water (feet) $bestime for feet feet feet feet feet feet feet fee$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                        |                                                                 |                                                                      |                                                                  |                                                                       |                                                            |                    |  |  |
| TIME       WA         (2400 hr)       LE         (f       (f         0500       (A)         0505       (A)         0505       (A)         0505       (A)         0505       (A)         0507       (A) | ATER     pH       VEL     (units)       eet)     ± 0.1                                 | COND<br>(mS/cm)<br>± 3%<br>13/2<br>13/2<br>12/5<br>12/5<br>12/4 | DO<br>(mg/L)<br>±10%<br>5.74<br>5.76<br>5.76<br>5.39<br>5.39<br>5.70 | TEMP<br>°C<br>17.19<br>17.13<br>19.97<br>20.93<br>20.69<br>20.61 | TURB.<br>±10%<br>>1000<br>>1000<br>746.0<br>4746.0<br>4749.0<br>491.0 | ORP<br>(mV)<br>±10mV<br>125<br>101<br>74<br>80<br>87<br>84 | CUM. VOL.<br>(gal) |  |  |
| Purge Equipment<br>Laboratory<br>Chain-of-Custody<br>Shipment Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <u>OnSite Envi</u><br>y (yes/no) <u>YES</u>                                            | eadyflow 2<br>ronmental                                         | Samı<br>Date<br>Field<br>Split                                       | Sent to L<br>QC Samp<br>with (nan                                | pment<br>ab<br>ble Number<br>be(s)/organi                             | Grundfos I                                                 | Readyflow 2        |  |  |
| Well Integrity On - locked char Addrie<br>Remarks Schmung of GH.<br>Signature Page of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                        |                                                                 |                                                                      |                                                                  |                                                                       |                                                            |                    |  |  |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\06P-GW-SWSamplesPMX\Blank GW Form.doc

4

Sample #:\_\_\_\_\_

Well #: <u>MW-11</u> WSP-MW-11-GW- GAL

#### Groundwater Sampling Field Data Sheet

| Project Numbe<br>Project Name                                                                                                                                              | $\frac{215-2}{\text{RI/FS}}$                                                    | 562-004<br>WA State H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Date<br>Loca                                                   | ation                                                  | WA State                                                | Celth 2.<br>Penitentiar                                     | <u>б[</u><br>У                               |                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------|----------------------------------------|
| Project Addres<br>Client Name                                                                                                                                              | s 1313<br>Walla<br>WA S                                                         | North 13th A<br>Walla, WA<br>tate Dept. o                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Avenue<br>99362<br>f Corrections                               | Sam<br>Pure                                            | pled By<br>red By                                       | Mike Baxter/Lara Linde<br>(Same as above.)                  |                                              |                                        |
|                                                                                                                                                                            |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                | 1 418                                                  | ,eu Dy                                                  |                                                             | 400 ve.)                                     |                                        |
| Casing Diamet                                                                                                                                                              | er: 2"                                                                          | X 4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6"                                                             | Oth                                                    | ner                                                     | •                                                           | 1.                                           |                                        |
| Depth to Water<br>Depth of Well<br>Reference Poin<br>Date/Time Sam                                                                                                         | (feet)<br>(feet)<br>t (survey)<br>pled                                          | Cox<br>He<br>Dors notch/et<br>Cafthfte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.43<br>.45<br>c) Top of Cas                                   | Purg Date ing Purg Flow                                | e Vol. Me<br>Purged<br>e Time (f<br>v Rate (ml          | eas.Method<br>rom/to)<br>/min)                              | Grad cyl &                                   | & stop watch<br>4/6011<br>- 0950<br>10 |
| Purg<br>Purg<br>Calcu                                                                                                                                                      | e Volume<br>e Volume<br>ulated Pu                                               | Calculation<br>(gallons) for<br>ge Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | n: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons) <u>h</u> | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br><u>V/A</u> | Casing vol<br>" = (0.653<br>Actual Pur                  | umes)<br>3)(h)(#Cv);<br>ge Volume                           | 6" = (1.48<br>e (gallons)                    | )(h)(#Cv)<br>25                        |
| TIME       W         (2400 hr)       L         0905       (a         0907       (a         0913       (a         0913       (a         0921       (a         0921       (a | VATER<br>EVEL<br>(feet)<br>6.00<br>7.99<br>6.00<br>7.99<br>6.00<br>7.99<br>7.97 | pH<br>(units)<br>± 0.1<br><u>4.14</u><br><u>4.06</u><br><u>4.06</u><br><u>4.05</u><br><u>4.04</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COND<br>(mS/cm)<br>± 3%<br>95<br>96<br>96<br>96<br>96<br>97    | DO<br>(mg/L)<br>±10%<br>7.21<br>7.70<br>7.75<br>7.75   | TEMP<br>°C<br>19.15<br>20.13<br>20.20<br>20.75<br>20.75 | TURB.<br>±10%<br>> 1000<br>> 1000<br>494.0<br>209.0<br>69.6 | ORP<br>(mV)<br>±10mV<br>61<br>61<br>67<br>76 | CUM. VOL.<br>(gal)                     |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Meth                                                                                                             | nt <u>C</u><br>dy (yes/n<br>od                                                  | brundfos Re<br>DinSite Envir<br>DinSite Envir<br>DinSite Envir<br>DinSite Environment<br>DinSite Envi | adyflow 2                                                      | Samı<br>Date<br>Field<br>Split                         | Sent to L<br>QC Samp<br>with (nan                       | pment<br>ab<br>ple Numbe<br>ne(s)/organ                     | Grundfos I                                   | Readyflow 2                            |
| Well Integrity<br>Remarks                                                                                                                                                  | OK-lo                                                                           | ched, de                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | w S. delv                                                      | 16.                                                    |                                                         |                                                             | 2<br>12<br>12                                |                                        |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\06P-GW-SWSamplesPMX\Blank GW Form.doc

Page

of

Signature

Sample #:\_\_\_\_

Well #: <u>MW-10</u> WSP-MW-10-GW- 061211

#### Groundwater Sampling Field Data Sheet

| Project Numb<br>Project Name<br>Project Addre<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Project Number215-2662-004Project NameRI/FS WA State PenitentiaryProject Address1313 North 13th AvenueWalla Walla, WA 99362WA State Dept. of Corrections |                                                                                                                   | Dat                                                            | e<br>ation<br>npled By<br>ged By                                                                                                             | WA State Penitentiary         Mike Baxter/Lara Linde         (Same as above.) |                                                                                |                                                                 |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------|
| Casing Diame                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ter: 2"                                                                                                                                                  | X 4"                                                                                                              | 6"                                                             | Ot                                                                                                                                           | her                                                                           |                                                                                |                                                                 |                    |
| Depth to Water (feet)       Lange (60)       Purge Vol. Meas.Method Grad cyl & stop watch         Depth of Well (feet)       The Dot of Casing       Date Purged       Lange (1/2/1/2011)         Reference Point (surveyors notch/etc) Top of Casing       Purge Time (from/to)       1001 - 10314         Date/Time Sampled       Lange (1/2/1/2011)       Point (1/2/1/2011)       1030         Purge Vol. Meas.Method Grad cyl & stop watch       Date Purged       Lange (1/2/1/2011)         Date/Time Sampled       Lange (1/2/1/2011)       Purge (1/2/1/2011)       1001 - 10314         Date Purgea Values Values (2/2/1/2011)       1030       Flow Rate (ml/min)       350                                                                                          |                                                                                                                                                          |                                                                                                                   |                                                                |                                                                                                                                              |                                                                               |                                                                                |                                                                 |                    |
| Purg<br>Purg<br>Calo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ge Volume<br>ge Volume<br>culated Pur                                                                                                                    | Calculation<br>(gallons) for<br>ge Volume                                                                         | h: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons) <u>N</u> | gal/ft <sup>3</sup> )(# (<br>(h)(#Cv); 4<br><u>V/A</u>                                                                                       | Casing vol<br>4" = (0.653<br>Actual Pur                                       | umes)<br>3)(h)(#Cv);<br>rge Volume                                             | 6" = (1.48)<br>(gallons)                                        | )(h)(#Cv)<br>      |
| TIME       V         (2400 hr)       I         100       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0         1014       0 | VATER<br>LEVEL<br>(feet)<br>A.G.<br>A.G.<br>A.G.<br>A.G.<br>A.G.<br>A.G.<br>A.G.<br>A.G                                                                  | pH<br>(units)<br>± 0.1<br><u>7,122</u><br><u>6,93</u><br><u>6,93</u><br><u>6,93</u><br><u>6,94</u><br><u>6,95</u> | COND<br>(mS/cm)<br>± 3%<br><u>40</u><br>90<br>90<br>90<br>90   | DO<br>(mg/L)<br>±10%<br><u>5,23</u><br><u>7,85</u><br><u>7,85</u><br><u>7,85</u><br><u>7,85</u><br><u>7,85</u><br><u>7,85</u><br><u>7,75</u> | TEMP<br>°C<br>18.09<br>18.12<br>19.10<br>20.01<br>20.05                       | TURB.<br>±10%<br>~ (000<br>~ )006<br>459.0<br>330.0<br>179.0<br>179.0<br>179.0 | ORP<br>(mV)<br>±10mV<br>(05<br>72<br>67<br>70<br>73<br>75<br>75 | CUM. VOL.<br>(gal) |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Meth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ent <u>C</u><br>ody (yes/ne<br>od                                                                                                                        | nSite Envir<br>) YES                                                                                              | adyflow 2<br>onmental                                          | Sam<br>Date<br>Field<br>Split                                                                                                                | pling Equ<br>Sent to L<br>QC Sam<br>with (nar                                 | ipment<br>ab<br>ple Number<br>ne(s)/organi                                     | Grundfos I<br>                                                  | Readyflow 2        |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | OK-le<br>Sct p<br>111                                                                                                                                    | cheil cle                                                                                                         | eyr of deb                                                     | V16.                                                                                                                                         | Page                                                                          |                                                                                | of                                                              |                    |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\06P-GW-SWSamplesPMX\Blank GW Form.doc

VV

Well #: <u>MW-5</u> WSP-MW-05-GW- OG121

Sample #:

### **Groundwater Sampling Field Data Sheet**

| Project Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 215-2662                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | e                                                                                                                   |                                                                           | 6/12/20                                                                                                                                                                   | >1                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Project Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RI/FS W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | A State Pe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | enitentiary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Loca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ation                                                                                                               | WA State 1                                                                | Penitentiar                                                                                                                                                               | у                  |
| Project Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1313 Nor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | th 13th A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | venue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                     |                                                                           | and the second                                                                                                                                                            | 1                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Walla Wa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | alla, WA 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 99362                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Sam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | pled By                                                                                                             | Mike Baxte                                                                | er/Lara Lir                                                                                                                                                               | nde                |
| Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | t Name WA State Dept. of Corrections Purged By (Same as abo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | bove.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                     |                                                                           |                                                                                                                                                                           |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | - 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                     |                                                                           |                                                                                                                                                                           |                    |
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | : Ż"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Oth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ner                                                                                                                 |                                                                           |                                                                                                                                                                           |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                     | ¥.,                                                                       |                                                                                                                                                                           |                    |
| Depth to Water (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ft. 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Purg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | e Vol. Me                                                                                                           | eas.Method                                                                | Grad cyl &                                                                                                                                                                | k stop watch       |
| Depth of Well (fe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | eet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -103.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Stull 102.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Purged                                                                                                              |                                                                           | 612                                                                                                                                                                       | 2/2011             |
| Reference Point (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | surveyors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | notch/etc)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Top of Cas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ing Purg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | e Time (f                                                                                                           | rom/to)                                                                   | 1310                                                                                                                                                                      | -135e              |
| Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | led                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 124/20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11 1350                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Flow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | v Rate (ml                                                                                                          | /min)                                                                     | 3                                                                                                                                                                         | 50                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                     |                                                                           | -<br>-                                                                                                                                                                    | 2                  |
| Purge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Volume Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | alculation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $(\pi r^{2}h)(7.48)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $ga1/ft^{3})(\# ($                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | asing vol                                                                                                           | umes)                                                                     |                                                                                                                                                                           | ре — <sup>7</sup>  |
| Purge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Volume (g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | allons) for                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2'' = (0.16)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (h)(#Cv): 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | " = (0.653)                                                                                                         | (h)(#Cv):                                                                 | 6" = (1.48)                                                                                                                                                               | )(h)(#Cv)          |
| Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ated Purge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Volume (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | gallons) N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | I/A A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Actual Pur                                                                                                          | ge Volume                                                                 | (gallons)                                                                                                                                                                 | 3                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                     |                                                                           |                                                                                                                                                                           |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                     |                                                                           |                                                                                                                                                                           |                    |
| TIME WA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TEP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | nЦ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | COND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | TEMD                                                                                                                | TIDD                                                                      | OPD                                                                                                                                                                       | CIM VOI            |
| TIME WA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TER<br>VFL (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | pH<br>units)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | COND<br>(mS/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DO<br>(mg/L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TEMP                                                                                                                | TURB.                                                                     | ORP<br>(mV)                                                                                                                                                               | CUM. VOL.          |
| TIME WA<br>(2400 hr) LE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ATER<br>VEL (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | pH<br>units)<br>+ 0 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ + 3\% \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DO<br>(mg/L)<br>+10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TEMP<br>°C                                                                                                          | TURB.<br>±10%                                                             | ORP<br>(mV)<br>+10mV                                                                                                                                                      | CUM. VOL.<br>(gal) |
| TIME WA<br>(2400 hr) LE<br>(fe<br>1322 -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ATER<br>VEL (<br>eet) =                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | pH<br>units)<br>± 0.1<br><del>1.88</del>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DO<br>(mg/L)<br>±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TEMP<br>°C                                                                                                          | TURB.<br>±10%                                                             | ORP<br>(mV)<br>±10mV                                                                                                                                                      | CUM. VOL.<br>(gal) |
| $\begin{array}{c} \text{TIME} & \text{WA} \\ (2400 \text{ hr}) & \text{LE} \\ \hline \\ 1322 & - \\ \hline 1322 & - \\ \hline \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ATER<br>VEL (<br>eet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | pH<br>units)<br>± 0.1<br><del>1.88</del><br>7.74                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | COND<br>(mS/cm)<br>± 3%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br>8,59(<br>197                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TEMP<br>°C<br><u>20.14</u>                                                                                          | TURB.<br>±10%                                                             | ORP<br>(mV)<br>±10mV<br><u>90</u>                                                                                                                                         | CUM. VOL<br>(gal)  |
| $\begin{array}{c} \text{TIME} & \text{WA} \\ (2400 \text{ hr}) & \text{LE} \\ (for \\ 1322 & - \\ 1320 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\ 1530 & 90 \\$ | ATER<br>VEL (<br>eet)<br>30<br>43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | pH<br>units)<br>± 0.1<br><del>4.88</del><br><u>4.74</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $\begin{array}{c} DO\\(mg/L)\\ \pm 10\%\\ \hline 8.59\\ \hline 4.97\\ \hline 1.45\\ \hline 1.45\\ \hline \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TEMP<br>°C<br><u>20.14</u><br><u>20.01</u><br><u>1120</u>                                                           | TURB.<br>±10%<br>>1000<br>                                                | ORP<br>(mV)<br>±10mV<br><u>40</u><br>(ala                                                                                                                                 | CUM. VOL<br>(gal)  |
| $\begin{array}{cccc} TIME & WA \\ (2400 hr) & LE \\ (fr \\ 1322 & - \\ 1326 & 90 \\ 1334 & 90 \\ 1334 & 90 \\ 1334 & 90 \\ \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ATER<br>VEL (<br>eet) =<br><u>30</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $pH$ units) $\pm 0.1$ $4.88$ $7.74$ $-$ $7.74$ $-$ $7.74$ $-$ $7.74$ $-$ $7.74$ $-$ $-$ $7.74$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COND<br>(mS/cm)<br>$\pm 3\%$<br>55.2<br>52.4<br>52.4<br>52.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br><u>8,59</u><br><u>49</u><br><u>7,20</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TEMP<br>°C<br><u>20.14</u><br><u>20.01</u><br><u>21.30</u><br><u>20.93</u>                                          | TURB.<br>±10%<br><u>&gt;1000</u><br>5H<br><u>444</u>                      | $ORP (mV) \pm 10mV - 90 - 00 - 00 - 00 - 00 - 00 - 00 - 0$                                                                                                                | CUM. VOL<br>(gal)  |
| $\begin{array}{cccc} \text{TIME} & \text{WA} \\ (2400 \text{ hr}) & \text{LE} \\ (fi) \\ \hline 1326 & 90 \\ \hline 1320 & 90 \\ \hline 1337 & 90 \\ \hline 1337 & 90 \\ \hline 1337 & 90 \\ \hline \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ATER       VEL     (       set)     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -    -     -    -     - | pH<br>units)<br>± 0.1<br>4.88<br>F.74<br>F.74<br>F.65<br>F.66<br>F.66                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | COND<br>(mS/cm)<br>$\pm 3\%$<br>55.4<br>52.6<br>52.3<br>52.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br><u>8.59(</u><br><u>7.97</u><br><u>7.95</u><br><u>8.20</u><br><u>7.29</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | TEMP<br>°C<br><u>20.14</u><br><u>20.01</u><br><u>21.20</u><br><u>20.93</u><br><u>10.17</u>                          | TURB.<br>±10%<br>>1000<br>576<br>                                         | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>60</u><br><u>66</u><br><u>63</u>                                                                                                  | CUM. VOL<br>(gal)  |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TER           VEL         (           set)         -           30         -           43         -           43         -           45         -           46         -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | pH<br>units)<br>± 0.1<br>4.78<br>4.74<br>4.74<br>4.74<br>4.62<br>4.65<br>4.65<br>4.65<br>4.65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6<br>52.3<br>51.3<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | $\begin{array}{c} DO \\ (mg/L) \\ \pm 10\% \\ \hline 8.5F( \\ \hline 4.97 \\ \hline 7.25 \\ \hline 7.25 \\ \hline 7.29 \\ \hline 7.21 \\ \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TEMP<br>°C<br>20.14<br>20.01<br>21.80<br>20.93<br>20.93<br>22.47<br>22.47                                           | TURB.<br>±10%<br>>1000<br>572<br>(44<br>555.0<br>440.0                    | $\begin{array}{c} \text{ORP} \\ (mV) \\ \pm 10mV \\ \underline{40} \\ \underline{60} \\ \underline{64} \\ \underline{65} \\ \underline{65} \\ \underline{67} \end{array}$ | CUM. VOL<br>(gal)  |
| $\begin{array}{c cccc} TIME & WA \\ (2400 hr) & LE \\ (fi \\ 1322 & - \\ 1326 & 90 \\ 1330 & 90 \\ 1354 & 90 \\ 1328 & 90 \\ 1342 & 90 \\ 1344 & - \\ \end{array}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TER<br>VEL (<br>eet)<br>30<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>44<br>45<br>45                                                                                                                                                                                                                                                                                                                                      | $ \begin{array}{c} pH \\ units) \\ \pm 0.1 \\ 4.88 \\$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\begin{array}{c} \text{COND} \\ \text{(mS/cm)} \\ \pm 3\% \\ 55.2 \\ 55.4 \\ 54.5 \\ 51.3 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ 51.5 \\ $ | $\begin{array}{c} DO\\ (mg/L)\\ \pm 10\%\\ \hline 8.59\\ \hline 4.47\\ \hline 7.47\\ \hline 7.47\\ \hline 8.20\\ \hline 7.29\\ \hline 7.12\\ \hline 7.14\\ \hline 7.47\\ \hline 7.$ | TEMP<br>°C<br>20.14<br>20.01<br>21.30<br>20.93<br>22.37<br>23.64<br>12.57                                           | TURB.<br>±10%<br>>1000<br>574<br>644<br>555.0<br>410.0<br>505.0           | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>65</u><br><u>67</u><br><u>64</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME         WA           (2400 hr)         LE           (fill         (fill           1326         90           1330         90           1338         90           1342         90           1342         90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TER<br>VEL (<br>eet)<br>30<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>44<br>43<br>44<br>44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $ \begin{array}{c} pH \\ units) \\ \pm 0.1 \\ 4.88 \\ 4.88 \\ 4.69 \\ 4.63 \\ 4.63 \\ 4.64 \\ 4.64 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ 4.65 \\ $ | COND<br>(mS/cm)<br>$\pm 3\%$<br>55.2<br>52.6<br>52.3<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br><u>8,54</u><br><u>7,94</u><br><u>7,95</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | TEMP<br>°C<br>20.14<br>20.01<br>21.30<br>20.93<br>22.93<br>22.93<br>22.93<br>23.64<br>23.64<br>22.57                | TURB.<br>±10%<br>>1000<br>872-<br>644<br>555.0<br>420.0<br>bbb.0<br>252.0 | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>65</u><br><u>67</u><br><u>67</u>                                                                                     | CUM. VOL<br>(gal)  |
| TIME         WA           (2400 hr)         LE           (fr           1322            1326         90           1358         90           1342         90           13442         90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TER<br>VEL (<br>eet)<br>30<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43<br>43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>4.63<br>4.63<br>4.63<br>4.63<br>4.69<br>4.69<br>4.69<br>4.69<br>4.69<br>4.69<br>4.69                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COND<br>(mS/cm)<br>$\pm 3\%$<br>55.2<br>52.6<br>52.3<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DO<br>(mg/L)<br>±10%<br><u>8,591</u><br><u>7,355</u><br><u>7,20</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TEMP<br>°C<br>20.14<br><u>20.01</u><br><u>21.20</u><br><u>20.93</u><br><u>22.47</u><br><u>23.64</u><br><u>22.67</u> | TURB.<br>±10%<br>>1000<br>876<br>604<br>555.0<br>470.0<br>505.0<br>257.0  | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>65</u><br><u>67</u><br><u>67</u><br><u>67</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME         WA           (2400 hr)         LE           (fr           1322            1326         90           1338         90           1342         90           1342         90           1342         90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TER       VEL       (eet)       30       43       43       43       43       43       43       43       43       43       43       44       45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>7.64<br>4.63<br>7.64<br>7.64<br>7.64<br>7.65<br>7.65<br>7.65<br>7.65<br>7.65<br>7.65<br>7.65<br>7.65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6<br>52.3<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8,594</u><br><u>7,355</u><br><u>7,20</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TEMP<br>°C<br>20.14<br>20.01<br>21.20<br>20.93<br>20.93<br>22.27<br>23.64<br>23.64<br>22.57                         | TURB.<br>±10%<br>>1000<br>872<br>(44<br>558.0<br>470.0<br>568.0<br>257.0  | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u><br><u>67</u><br><u>67</u>                                                           | CUM. VOL<br>(gal)  |
| TIME     WA       (2400 hr)     LE       (fr       1322                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TER       VEL       (eet)       30       43       43       43       43       43       43       43       43       43       44       45       46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>7.74<br>7.74<br>7.74<br>7.74<br>7.75<br>7.75<br>7.75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COND<br>(mS/cm)<br>± 3%<br>55.4<br>52.6<br>52.5<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8,59(</u><br><u>7,97</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,40</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TEMP<br>°C<br>20.14<br>20.01<br>21.30<br>20.93<br>22.37<br>23.64<br>23.64<br>22.57                                  | TURB.<br>±10%<br>>1000<br>576<br>(44<br>558.0<br>470.0<br>558.0<br>256.0  | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u><br><u>67</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME       WA         (2400 hr)       LE         (fill       (fill         1326       90         1326       90         1358       90         1328       90         1340       -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TER       VEL       (eet)       30       43       43       43       43       44       45       46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | pH<br>units)<br>± 0.1<br><del>1,88</del><br><u>7,74</u><br><u>7,74</u><br><u>7,74</u><br><u>7,74</u><br><u>7,74</u><br><u>7,74</u><br><u>7,75</u><br><u>7,55</u><br><u>7,55</u><br><u>7,55</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.4<br>52.5<br>51.5<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DO<br>(mg/L)<br>±10%<br><u>8,59(</u><br><u>7,97</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TEMP<br>°C<br>20.14<br>20.01<br>21.80<br>20.93<br>22.47<br>23.64<br>12.57                                           | TURB.<br>±10%<br>>1000<br>572<br>(44<br>555.0<br>470.0<br>bbb.0<br>257.0  | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME       WA         (2400 hr)       LE         (fill       (fill         1326       90         1326       90         1337       90         1338       90         1342       90         1344                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | TER       VEL       (eet)       30       43       43       43       45       46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | pH<br>units)<br>± 0.1<br>4.78<br>4.74<br>4.63<br>4.65<br>4.65<br>4.65<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6<br>52.3<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8.54</u><br><u>7.97</u><br><u>7.97</u><br><u>7.99</u><br><u>7.99</u><br><u>7.99</u><br><u>7.99</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TEMP<br>°C<br>20.14<br>20.01<br>21.20<br>20.93<br>20.93<br>22.47<br>23.64<br>23.64<br>22.57                         | TURB.<br>±10%<br>>1000<br>572<br>(44<br>555.0<br>±120.0<br>257.0          | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME       WA         (2400 hr)       LE         (fi         1322       90         1330       90         1354       90         1328       90         1342       90         13442       90         13442       90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TER       VEL       (eet)       30       43       43       43       43       43       45       46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>4.63<br>4.63<br>4.63<br>4.63<br>4.63<br>4.63<br>4.63<br>4.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6<br>52.3<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8,599</u><br><u>7,355</u><br><u>7,20</u><br><u>7,20</u><br><u>7,20</u><br><u>7,20</u><br><u>7,20</u><br><u>7,20</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TEMP<br>°C<br>20.14<br><u>20.01</u><br><u>21.20</u><br><u>20.93</u><br><u>22.47</u><br><u>23.64</u><br><u>22.57</u> | TURB.<br>±10%<br>>1000<br>872-<br>664<br>555.0<br>470.0<br>505.0<br>257.0 | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u><br><u>67</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME       WA         (2400 hr)       LE         (fi       (fi         1322       90         1326       90         1327       90         1328       90         1342       90         13442       90         13442       90         13442       90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | TER       VEL       (eet)       30       43       43       43       43       44       45       46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>4.63<br>4.63<br>4.63<br>4.63<br>4.64<br>4.63<br>4.64<br>4.69<br>4.69<br>4.69<br>4.69<br>4.69<br>4.69<br>4.69                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6<br>52.3<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8,591</u><br><u>7,497</u><br><u>7,497</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u><br><u>7,291</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TEMP<br>°C<br>20.14<br>20.01<br>21.20<br>20.93<br>22.37<br>23.64<br>23.64<br>22.57                                  | TURB.<br>±10%<br>>1000<br>871-<br>665.0<br>470.0<br>505.0<br>257.0        | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>66</u><br><u>67</u><br><u>67</u><br><u>67</u><br><u>67</u>                                                                        | CUM. VOL<br>(gal)  |
| TIME       WA         (2400 hr)       LE         (fi       (fi         1322          1326       90         1338       90         1342       90         1342       90         1342       90         1342       90         1344                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | TER       VEL       (eet)       30       43       43       43       43       43       43       43       44       45       46       47       48       49       49       41       42       43       44       45       46       47       48       49       41       41       42       43       44       44       45       46       47       48       49       49       41       41       42       43       44       44       45       46       47       48       49       49       41       41       41       42       43       44       44       44       45       46       47       47       48       49       49                                          | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>4.63<br>4.63<br>4.63<br>4.63<br>4.63<br>4.63<br>4.63<br>4.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.4<br>52.5<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8,594</u><br><u>7,294</u><br><u>7,294</u><br><u>7,294</u><br><u>7,294</u><br><u>7,40</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TEMP<br>°C<br>20.14<br>20.01<br>21.20<br>20.93<br>22.37<br>23.64<br>22.57                                           | TURB.<br>±10%<br>>1000<br>872<br>(44<br>558.0<br>470.0<br>568.0<br>257.0  | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u><br><u>67</u><br><u>67</u>                                              | CUM. VOL<br>(gal)  |
| TIME       WA         (2400 hr)       LE         (fi       (fi         1322          1326       90         1338       90         1328       90         1342          1342                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TER         VEL       (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | pH<br>units)<br>± 0.1<br>4.88<br>7.74<br>7.74<br>7.74<br>7.74<br>7.74<br>7.74<br>7.75<br>7.75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COND<br>(mS/cm)<br>± 3%<br>55.2<br>52.6<br>52.5<br>51.5<br>51.5<br>51.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DO<br>(mg/L)<br>±10%<br><u>8,57(</u><br><u>7,97</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u><br><u>7,29</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TEMP<br>°C<br>20.14<br>20.01<br>21.80<br>20.93<br>22.47<br>23.64<br>12.57                                           | TURB.<br>±10%<br>>1000<br>576.0<br>440.0<br>556.0<br>410.0<br>257.0       | ORP<br>(mV)<br>±10mV<br><u>40</u><br><u>64</u><br><u>64</u><br><u>67</u><br><u>67</u><br><u>67</u><br><u>67</u>                                                           | CUM. VOL<br>(gal)  |

 Laboratory
 OnSite Environmental
 Date Sent to Lab
 6/23/201

 Chain-of-Custody (yes/no)
 YES
 Field QC Sample Number
 —

 Shipment Method
 Foregram
 Split with (name(s)/organization)
 N/A

| Well Integrity<br>Remarks | Monument bottal, but not cap on wa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Il casing. | J |    |   |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---|----|---|
| Signature                 | Milling in the internet internet in the internet inte | Page       | l | of | 1 |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            | 1 |    |   |

Sample #:\_\_\_\_\_

Well #: <u>MW-9</u> SLF-MW-09-GW- 062311

### Groundwater Sampling Field Data Sheet

| Project Number 215-2662-004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                      |                                                  | Date                                                                                   | e                                                                                                                          | 61                                                 | 123/1011                                  |                                                                                                                                                                                    |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Project Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RI/FS                                                                                                | WA State I                                       | Penitentiary                                                                           | Loc                                                                                                                        | ation                                              | Sudbury L                                 | andfill                                                                                                                                                                            |              |
| Project Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 13131                                                                                                | North 13th                                       | Avenue                                                                                 | ~                                                                                                                          | 1.15                                               |                                           |                                                                                                                                                                                    | · · ·        |
| C1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Walla                                                                                                | Walla, WA                                        | 99362                                                                                  | Sam                                                                                                                        | pled By                                            | Mike Baxt                                 | ter/Lara Lir                                                                                                                                                                       | nde          |
| wA State Dept. of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                      |                                                  |                                                                                        | Purg                                                                                                                       | ged By                                             | (Same as a                                | ibove.)                                                                                                                                                                            |              |
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | :: 2"                                                                                                | X 4"                                             | 6"                                                                                     | Oth                                                                                                                        | her                                                |                                           |                                                                                                                                                                                    |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | X                                                                                                    |                                                  |                                                                                        |                                                                                                                            |                                                    |                                           |                                                                                                                                                                                    |              |
| Depth to Water (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | feet)                                                                                                | 59                                               | 73                                                                                     | Purg                                                                                                                       | ge Vol. Me                                         | as.Method                                 | Grad cyl &                                                                                                                                                                         | & stop watch |
| Depth of Well (f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | eet) _                                                                                               | N/                                               | F                                                                                      | Date                                                                                                                       | Purged                                             |                                           | 6/1                                                                                                                                                                                | 23/2011      |
| Reference Point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (surveyo                                                                                             | ors notch/et                                     | c) <u>Top of Cas</u>                                                                   | sing Purg                                                                                                                  | ge Time (fr                                        | om/to)                                    | Ogiti                                                                                                                                                                              | 5-1026       |
| Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | led _                                                                                                | 6/23/2                                           | 011 1015                                                                               | Flow                                                                                                                       | v Rate (ml                                         | /min)                                     | - 4                                                                                                                                                                                | 00           |
| Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ated Pu                                                                                              | rge Volume                                       | (gallons) <u></u>                                                                      | N/A A                                                                                                                      | Actual Pur                                         | ge Volume                                 | o = (1.48)<br>e (gallons)                                                                                                                                                          |              |
| (2400  hr) LE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | VEL.                                                                                                 | pri<br>(units)                                   | (mS/cm)                                                                                | (mg/L)                                                                                                                     | °C                                                 | +10%                                      | (mV)                                                                                                                                                                               | (gal)        |
| (100 m) LL<br>(f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | eet)                                                                                                 | $\pm 0.1$                                        | $\pm 3\%$                                                                              | $\pm 10\%$                                                                                                                 | C                                                  | -10/0                                     | $\pm 10 \text{mV}$                                                                                                                                                                 | (gai)        |
| Bland L.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 21.11                                                                                                | 1.24                                             | 90                                                                                     | 5.75                                                                                                                       | 14.73                                              | 502 5                                     | - 75                                                                                                                                                                               |              |
| 0448 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2.04                                                                                                 | 0.7                                              |                                                                                        | 0.01                                                                                                                       |                                                    | J-2-1                                     | Brann Ld                                                                                                                                                                           |              |
| 0952 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3,80                                                                                                 | 4.70                                             | 90                                                                                     | 8.24                                                                                                                       | 14.79                                              | 248.0                                     | 41                                                                                                                                                                                 | 2.4-         |
| 0952 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3.80                                                                                                 | 4.70                                             | 90                                                                                     | 8.24                                                                                                                       | 14.79                                              | 258.0                                     | 41<br>68                                                                                                                                                                           |              |
| 0952 6<br>0952 6<br>0956 63<br>1060 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3.80                                                                                                 | 6.76<br>6.86<br>6.96                             | 96<br>96<br>90                                                                         | 8:24<br>8:10<br>8:22                                                                                                       | 14.79<br>14.82<br>14.76                            | 248.0<br>205.0<br>201.0                   | 41<br>68<br>79                                                                                                                                                                     |              |
| 09152 6<br>09152 6<br>09156 63<br>1060 63<br>1004 62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.80<br>3.80<br>3.84<br>20<br>90                                                                     | 6.86<br>6.86<br>(e.96<br>(o.93                   | 96<br>96<br>90<br>90                                                                   | 8:24<br>8:10<br>8:22<br>8:22                                                                                               | 14.79<br>14.82<br>14.76<br>14.76                   | 205.0<br>205.0<br>201.0<br>201.0          | 41<br>655<br>74<br>76                                                                                                                                                              |              |
| 09152 6<br>09152 6<br>09156 63<br>1000 63<br>1004 63<br>1004 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3.80<br>3.80<br>3.74<br>.20<br>.90                                                                   | 6.94<br>6.86<br>6.96<br>6.96<br>6.93             | 96<br>96<br>90<br>90<br>90                                                             | 8:24<br>8:10<br>8:22<br>7:51<br>8:76                                                                                       | 14.79<br>14.82<br>14.80<br>14.80                   | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>79<br>86<br>89                                                                                                                                                         |              |
| 09152 6<br>09152 6<br>1060 63<br>1004 63<br>1004 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.80<br>3.80<br>.70<br>.90<br>.00                                                                    | 6.94<br>6.86<br>(e.96<br>(o.93<br>(o.93)         | 96<br>96<br>90<br>90<br>90                                                             | 8:24<br>8:10<br>8:22<br>7:51<br>8:76                                                                                       | 14.79<br>14.82<br>14.82<br>14.80<br>14.80<br>14.80 | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>79<br>89                                                                                                                                                               |              |
| 09152 6<br>09152 6<br>1060 63<br>1004 63<br>1004 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.80<br>3.80<br>.20<br>.20<br>.20                                                                    | 6.94<br>6.86<br>(0.96<br>(0.93<br>(0.93<br>(0.91 | 90<br>90<br>90<br>90<br>90                                                             | 8.24<br>8.10<br>8.22<br>7.51<br>8.76                                                                                       | 14.79<br>14.82<br>14.76<br>14.70<br>14.85          | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>74<br>86<br>89                                                                                                                                                         |              |
| 09152 6<br>09152 6<br>1060 63<br>1004 63<br>1004 63<br>1005 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3.80<br>3.80<br>40<br>90<br>00                                                                       | 6.94<br>6.86<br>6.96<br>6.93<br>6.93<br>6.93     | 46<br>96<br>90<br>90<br>90                                                             | 8:24<br>8:10<br>8:12<br>7:51<br>8:76                                                                                       | 14.79<br>14.82<br>14.76<br>14.70<br>14.85          | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>74<br>86<br>89                                                                                                                                                         |              |
| 09152 6<br>09152 6<br>09152 6<br>1060 63<br>1004 63<br>1004 63<br>1004 63<br>1005 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.80<br>3.80<br>.20<br>.90<br>.00                                                                    | 6.94<br>6.86<br>(0.96<br>(0.93<br>(0.93)         | 46<br>96<br>90<br>90<br>90                                                             | 8:24<br>8:10<br>8:22<br>7:51<br>8:76                                                                                       | 14.79<br>14.82<br>14.86<br>14.80<br>14.85          | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>74<br>86<br>89                                                                                                                                                         |              |
| 09152 6<br>09152 6<br>09152 6<br>1060 63<br>1004 63<br>1004 63<br>1004 63<br>1005 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.80<br>3.80<br>.20<br>.90<br>.00                                                                    | 6.94<br>6.86<br>(0.96<br>(0.93<br>(0.93<br>(0.91 | 46<br>96<br>90<br>90<br>90<br>90                                                       | 8:24<br>8:10<br>8:12<br>7:51<br>8:76                                                                                       | 14.79<br>14.82<br>14.76<br>14.70<br>14.85          | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>74<br>86<br>89                                                                                                                                                         |              |
| 09152 6<br>09152 6<br>09156 6<br>1060 6<br>1060 6<br>1004 6<br>1005 6<br>100 | <u>5.04</u><br><u>3.80</u><br><u>3.80</u><br><u>40</u><br><u>90</u><br><u>90</u><br><u>90</u>        | <u>(</u>                                         | 46<br>96<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90 | 8.24<br>8.10<br>8.10<br>8.10<br>8.76<br>                                                                                   | 14.79<br>14.82<br>14.82<br>14.80<br>14.85          | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | 41<br>68<br>74<br>                                                                                                                                                                 | Readyflow 2  |
| 09152 6<br>09152 6<br>1060 63<br>1060 63<br>1004 63<br>1004 63<br>1005 64<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <u>90</u><br><u>90</u><br><u>90</u><br><u>90</u><br><u>90</u><br><u>90</u><br><u>90</u><br><u>90</u> | <u>(</u>                                         | adyflow 2                                                                              | <u>8.24</u><br><u>8.10</u><br><u>7.12</u><br><u>7.51</u><br><u>8.76</u><br><u></u><br><u></u><br><u></u><br><u></u><br>Sam | 14.79<br>14.82<br>14.82<br>14.80<br>14.85<br>14.85 | 205.0<br>205.0<br>201.0<br>201.0<br>182.0 | <u>41</u><br><u>68</u><br><u>74</u><br><u>76</u><br><u>79</u><br><u>76</u><br><u>89</u><br><u>89</u><br><u>89</u><br><u>89</u><br><u>89</u><br><u>89</u><br><u>89</u><br><u>89</u> | Readyflow 2  |

| Well Integrity | of - dear of delivie.             |                           |
|----------------|-----------------------------------|---------------------------|
| Remarks        | belli atech pullip wit adapter of | or well hear. MS/MGD Set. |
| Signature      | Autility                          | Page of                   |

Sample #:\_\_\_\_

Well #: <u>MW-7</u> SLF-MW-07-GW- 06231

Groundwater Sampling Field Data Sheet

| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                          | 215-26<br>RI/FS<br>1313 N<br>Walla<br>WA St              | 662-004<br>WA State P<br>North 13th A<br>Walla, WA<br>tate Dept. of           | Penitentiary<br>Avenue<br>99362<br>f Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Date<br>Loca<br>Sam<br>Purg                                                           | ation<br>pled By<br>ged By                                                                  | Sudbury L<br>Mike Baxt<br>(Same as a                                      | andfill<br>er/Lara Lin<br>bove.)                               | nde                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
| Casing Diameter                                                                                                                                                                           | : 2"                                                     | X 4"                                                                          | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Oth                                                                                   | ner                                                                                         |                                                                           |                                                                | ×                                                      |
| Depth to Water (<br>Depth of Well (fe<br>Reference Point (<br>Date/Time Samp<br>Purge<br>Calcula                                                                                          | feet)<br>(surveyo<br>led<br>Volume<br>Volume<br>ated Pun | Calculation<br>(gallons) for<br>ge Volume                                     | c) Top of Cas<br>(1120)<br>( $\pi^{2}h$ )(7.48)<br>( $\pi^{2$ | Purg<br>Date<br>ing Purg<br>Flow<br>gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>V/A A | e Vol. Me<br>Purged<br>e Time (fr<br>v Rate (ml.<br>Casing volu<br>" = (0.653<br>Actual Pur | as.Method<br>om/to)<br>/min)<br>umes)<br>umes)<br>umes)<br>umes)<br>umes) | Grad cyl &<br><u>(1/1</u><br>1050<br><u>(1.48</u><br>(gallons) | 2 stop watch<br>3/4011<br>1/30<br>00<br>)(h)(#Cv)<br>4 |
| TIME       WA         (2400 hr)       LE         (fa         1056       40,         1068       40         1102       40         1112       40         1112       40         1112       40 | TER<br>VEL<br>set)<br>80<br>7.73<br>7.75<br>7.75<br>7.75 | pH<br>(units)<br>± 0.1<br><u>7,53</u><br>7,53<br>7,54<br>7,54<br>7,54<br>7,54 | COND<br>(mS/cm)<br>± 3%<br>54.9<br>52.5<br>52.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DO<br>(mg/L)<br>±10%<br>(, 194<br>5.55<br>h.81<br>5.85                                | TEMP<br>°C<br>[5.07]<br>18.46<br>15.05<br>15.05                                             | TURB.<br>±10%<br><u>46.0</u><br>73.5<br>35.7<br><u>71.1</u><br>34.3       | ORP<br>(mV)<br>±10mV<br>163<br>74<br>64<br>66                  | CUM. VOL.<br>(gal)                                     |
| Purge Equipment<br>Laboratory                                                                                                                                                             | <u>C</u>                                                 | orundfos Res                                                                  | adyflow 2<br>conmental                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Samı<br>Date<br>Field                                                                 | Sent to La                                                                                  | pment<br>ab                                                               | Grundfos I                                                     | Readyflow 2                                            |
| Shipment Method                                                                                                                                                                           |                                                          | FedEx                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Split                                                                                 | with (nan                                                                                   | ne(s)/organ                                                               | ization) <u>N</u>                                              | /A                                                     |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                    | ok-c<br>Bet                                              | lear of a<br>ourmp at                                                         | chvig. Not                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | locked.                                                                               | Page                                                                                        | 1                                                                         | of                                                             |                                                        |

Well #: <u>MW-10</u> SLF-MW-10-GW- (Xo2-3)

Sample #:

Groundwater Sampling Field Data Sheet

| Project Nur                            | nber <u>215</u>       | -2662-004                                                |                        | Dat                   | e                        | 1.1                       | 6/23/24            | 5)(                        |
|----------------------------------------|-----------------------|----------------------------------------------------------|------------------------|-----------------------|--------------------------|---------------------------|--------------------|----------------------------|
| Project Nan                            | ne $\underline{RI/H}$ | S WA State I                                             | Penitentiary           | Loc                   | ation                    | Sudbury I                 | andfill            |                            |
| Project Add                            | iress 131             | 3 North 13th                                             | Avenue                 |                       |                          | 1.1                       | 1.00               |                            |
| C1:                                    | Wal                   | la Walla, WA                                             | 99362                  | Sam                   | npled By                 | Mike Bax                  | ter/Lara Li        | nde                        |
| Client Name                            | e <u>WA</u>           | WA State Dept. of Corrections Purged By (Same as above.) |                        | above.)               |                          |                           |                    |                            |
| Casing Diar                            | meter: 2"             | X 4"                                                     | 6"                     | Ot]                   | her                      |                           |                    | анан алтан (м. 1999)<br>19 |
| Depth to W:                            | ater (feet)           | 12                                                       |                        | Dure                  | ve Vol Ma                | Mathad                    | Grad avil 1        | e stop wotah               |
| Depth of We                            | ell (feet)            | N/                                                       | 10                     | Fulg                  | Purged                   | as.meinou                 | Grad Cyr c         | z stop watch               |
| Reference P                            | oint (surve           | vors notch/et                                            | c) Top of Cas          | ing Pure              | r uigeu<br>re Time (fi   | om/to)                    | 617                | 5/201                      |
| Date/Time S                            | Sampled               | (13)                                                     | 101 1210               | Flow                  | v Rate (ml               | $(\min)$                  | 1140               | 140                        |
|                                        |                       | - 4/2/                                                   | MI IND                 | 110V                  | · itale (illi            | (11111)                   | 40                 | $\mathcal{O}$              |
| C.                                     | alculated F           | Purge Volume                                             | (gallons) <u>N</u>     | √A                    | Actual Pur               | ge Volume                 | e (gallons)        | 2.25                       |
| TIME                                   | WATER                 | pH                                                       | COND                   | DO                    | TEMP                     | TURB.                     | ORP                | CUM. VOI                   |
| (2400 hr)                              | LEVEL (fact)          | (units)                                                  | (mS/cm)                | (mg/L)                | °C                       | $\pm 10\%$                | (mV)               | (gal)                      |
| 1145                                   | (Teel)                | $\pm 0.1$                                                | $\pm 3\%$              | ±10%                  | 14 FI                    | 110                       | $\pm 10 \text{mV}$ |                            |
| 1157                                   | 13 101                | 200                                                      | 90                     | Q.V.1                 | 14.11                    | 162                       | - FC               |                            |
| Utala                                  | 2315                  | 6 910                                                    | 90                     | 714                   | 16.12                    | 15.1                      | Vita               |                            |
| 1200                                   | 23.15                 | 6.91                                                     | 90                     | Lt Calo               | 17.75                    | 20.0                      | 91/2               |                            |
| 1204                                   | 23.15                 | 6,93                                                     | 90                     | 4.44                  | 18.14                    | 22.3                      | 99                 |                            |
| 1208                                   | 23.15                 | 6,88                                                     | 90                     | 4.42                  | 17.97                    | 22.2                      | 98                 |                            |
|                                        |                       |                                                          |                        |                       |                          |                           |                    | -                          |
|                                        |                       |                                                          |                        |                       |                          |                           | 1.4                |                            |
|                                        | S. A.                 |                                                          | -                      |                       |                          |                           | - C                |                            |
|                                        |                       |                                                          |                        |                       |                          |                           | -                  |                            |
|                                        |                       |                                                          |                        |                       |                          |                           | -                  |                            |
| <u>e.</u> 4                            |                       |                                                          |                        |                       |                          |                           |                    |                            |
|                                        |                       |                                                          |                        |                       |                          |                           |                    |                            |
|                                        |                       | 1.1                                                      | 4                      |                       |                          |                           |                    |                            |
|                                        |                       |                                                          |                        |                       |                          |                           |                    |                            |
| <u>.</u>                               |                       |                                                          |                        |                       |                          |                           |                    |                            |
| urge Equip                             | ment                  | Grundfos Re                                              | adyflow 2              | Samı                  | pling Equi               | pment                     | Grundfos I         | Readyflow 2                |
| urge Equips                            | ment                  | Grundfos Re<br>OnSite Envir                              | adyflow 2              | Samp                  | pling Equi               | pment                     | Grundfos I         | Readyflow 2                |
| Irge Equipt<br>Iboratory<br>Dain-of-Cu | ment<br>stody (yes,   | Grundfos Res<br>OnSite Envir<br>no) YES                  | adyflow 2<br>ronmental | Samp<br>Date<br>Field | pling Equi<br>Sent to La | pment<br>ib<br>ile Number | Grundfos I         | Readyflow 2                |

| Well Integrity | Oh- clear of debris. Now what care hive husban Cannot lock | . <u>.</u> . |
|----------------|------------------------------------------------------------|--------------|
| Remarks        | Dedicated parmin, Need City inlaster and estroller.        |              |
| Signature      | Page of                                                    | 1            |
|                | Could be                                                   |              |

| <b>Param</b><br>Groundwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | etrix, Inc.<br>Iter Sampling Field Dat                                                                                                                                                                                                                                                                                                                                                                                                                                   | ta Sheet                                                                                   | Well #:<br>Sample #:<br>WGP - 1 - <b>9</b> 9                                                   | W-1                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Project Number<br>Project Name<br>Project Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 215-2662-004<br>RI/FS WA State Penitentiary<br>1313 North 13th Avenue<br>Walla Walla WA 99362                                                                                                                                                                                                                                                                                                                                                                            | Date<br>Location                                                                           | 9/19/11<br>Landh/L                                                                             | Trecanni                                           |
| Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | WA State Dept. of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                            | Purged By                                                                                  | (Same as above.)                                                                               |                                                    |
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | : 2" <u>X</u> 4" <u>6</u> " <u>· · · · · · · · · · · · · · · · · · ·</u>                                                                                                                                                                                                                                                                                                                                                                                                 | Other                                                                                      |                                                                                                |                                                    |
| Depth to Water (<br>Depth of Well (fe<br>Reference Point (<br>Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | feet) $59.49$<br>(surveyors notch/etc) Top of Casing<br>1ed $9/19/11 - 1435$<br>Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ft})$                                                                                                                                                                                                                                                                                                                                    | Purge Vol. M<br>'Date Purged'<br>Purge Time (<br>Flow Rate (m<br><sup>3</sup> )(# Cosing w | Ieas.Method Meas cup<br>from/to)<br>nl/min) 3070                                               | & stop watc<br>  <br>-  482<br> mf/m/k             |
| Purge<br>Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Volume (gallons) for $2^{\circ} = (0.16)(h)(\#0.000)$<br>ated Purge Volume (gallons) <u>N/A</u>                                                                                                                                                                                                                                                                                                                                                                          | Cv); $4^{"} = (0.65)$<br>Actual Pu                                                         | 53)(h)(#Cv); 6" = (1.48)<br>arge Volume (gallons)                                              | )(h)(#Cv)                                          |
| $\begin{array}{cccc} \text{TIME} & \text{WA} \\ \text{(2400 hr)} & \text{Le} \\ \text{(14)} & \text{(17)} \\ \text{(14)} & \text{(27)} \\ \text{(27)} & \text{(27)} & \text{(27)} & \text{(27)} \\ \text{(27)} & (27$ | ATER       pH       COND       D         VEL       (units)       (mS/cm)       (mg $eet$ ) $\pm 0.1$ $\pm 3\%$ $\pm 11$ $b.49$ $6.98$ $82.2$ $5$ $b.49$ $6.98$ $80.4$ $5.$ $b.49$ $6.71$ $71.4$ $5.$ $b.49$ $6.54$ $80.4$ $5.$ $b.44$ $6.54$ $80.5$ $5.$ $b.44$ $6.54$ $80.5$ $5.$ $b.44$ $6.54$ $80.5$ $5.$ $b.44$ $6.54$ $82.0$ $5.$ $b.44$ $6.54$ $82.0$ $5.$ $a.49$ $b.51$ $82.0$ $5.$ $a.49$ $b.51$ $82.0$ $5.$ $a.49$ $a.51$ $82.0$ $5.$ $a.49$ $a.51$ $82.0$ $5.$ | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                       | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                           | CUM. VOI<br>(gal)                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                            |                                                                                                |                                                    |
| Purge Equipmen<br>Laboratory<br>Chain-of-Custod<br>Shipment Metho                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | t Grundfos Readyflo 2<br><u>Tecst Amerita</u><br>y (yes/no) YES<br>d <u>Hand delivwed</u>                                                                                                                                                                                                                                                                                                                                                                                | Sampling Eq<br>Date Sent to<br>Field QC Sar<br>Split with (na                              | uipment     Grundfos       Lab     4/       nple Number     1       ame(s)/organization)     N | Readyflo 2<br>//////////////////////////////////// |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Gront<br>primp C. 63 Pt, car<br>primp C. 63 Pt, car                                                                                                                                                                                                                                                                                                                                                                                                                      | n <i>nH Ma</i><br>Pag                                                                      | untain consta<br>e of                                                                          | nt flon                                            |

| GI GIIIG<br>Groundwa                                                                           | ter Sampling Field Da                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | samı<br>ta Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Well #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Number<br>Project Name<br>Project Address<br>Client Name                               | 215-2662-004<br>RI/FS WA State Penitentiary<br>1313 North 13th Avenue<br>Walla Walla, WA 99362<br>WA State Dept. of Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DateImage: Constraint of the second seco | a/19/11<br>Ield by Compostingfa<br>nde/E. Heinitz/S.Trecanni<br>ne as above.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Casing Diameter                                                                                | 2" <u>X</u> 4" <u>6</u> "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Depth to Water (<br>Depth of Well (fe<br>Reference Point (<br>Date/Time Samp<br>Purge<br>Purge | feet) <u>42.14</u><br>surveyors notch/etc) Top of Casing<br>led <u>9/19/11</u> <u>1605</u><br>Volume Calculation: $(\pi r^2h)(7.48 \text{ gal/ff})(7.48 \text{ gal/ff})(7.48$ | Purge Vol. Meas.M.<br>Date Purged<br>Purge Time (from/t<br>Flow Rate (ml/min)<br>$t^{3}$ )(# Casing volumes<br>Cv); 4" = (0.653)(h)(                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\begin{array}{c} \text{Meas cup & stop watch} \\ \hline 9 & \hline 1534 - 1558 \\ \hline 325 & \hline 1641 \\ \hline 9 & \hline 325 & \hline 1641 \\ \hline 9 & \hline 1534 - 1558 \\ \hline 325 & \hline 1641 \\ \hline 9 & \hline 1634 \\ \hline 9 & \hline 1534 \\ \hline 9 & \hline 1634 \\ \hline 9 & $ |
|                                                                                                | TED U CONT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Actual Purge V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                           | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Purge Equipment<br>Laboratory<br>Chain-of-Custod<br>Shipment Metho                             | Grundfos Readyflo 2<br><u>Tel-Hamerica</u><br>y (yes/no) <u>YES</u><br>d <i>Händ del Ivered</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Sampling Equipme<br>Date Sent to Lab<br>Field QC Sample N<br>Split with (name(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | nt Grundfos Readyflo 2<br>Iumber<br>/organization) N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Well Integrity<br>Remarks                                                                      | Good<br>Amo P. Holt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Well #: <u>MW-3</u>

Sample #: **Groundwater Sampling Field Data Sheet** 11:5P-9191 Project Number 215-2662-004 Date **RI/FS WA State Penitentiary** Location Project Name 1313 North 13th Avenue **Project Address** Sampled By L.Linde/E. Heinitz/S.Trecanni Walla Walla, WA 99362 WA State Dept. of Corrections Purged By (Same as above.) **Client Name** Casing Diameter: 2" 4" 6" Other Х Depth to Water (feet) Purge Vol. Meas.Method Meas cup & stop watch Date Purged Depth of Well (feet) Reference Point (surveyors notch/etc) Top of Casing Purge Time (from/to) 9/19/11 Flow Rate (ml/min) Date/Time Sampled 055 Purge Volume Calculation:  $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$ Purge Volume (gallons) for  $2^{"} = (0.16)(h)(\#Cv); 4^{"} = (0.653)(h)(\#Cv); 6^{"} = (1.48)(h)(\#Cv)$ Actual Purge Volume (gallons) Calculated Purge Volume (gallons) N/A CUM. VOL. COND DO TEMP TURB. ORP TIME WATER pН ±10% (mV)(gal) (units) (mS/cm) (mg/L)°C (2400 hr) LEVEL (feet)  $\pm 3\%$  $\pm 10\%$ ±10mV  $\pm 0.1$ .91 8.40 188 87 8) 14.0 1,40 12 DA .4 7.43 80 8.60 19.6 103 Sm 78 20:3 6.18 10.43 7-1o 70 10-1.710 35.D Grundfos Readyflo 2 **Purge Equipment** Grundfos Readyflo 2 Sampling Equipment 9 lister Date Sent to Lab Laboratory Field QC Sample Number Chain-of-Custody (yes/no) YES Shipment Method Split with (name(s)/organization) N/Á VAVX Well Integrity

Well Integrity Remarks Signature Signatur

| <b>Parame</b><br>Groundwa                                                                                                                                                                                                             | etrix, li<br>ter Samplin                                                                                                                                                                                        | <b>AC.</b><br>ng Field D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ata S                                                                                | heet                                                                                      | We<br>Sample #:<br>WSP                                                              | ell #: 191                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N-5<br>011                                             | |
|---|---|---|---|---|---|---|---|---|
| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                      | 215-2662-004<br>RI/FS WA State F<br>1313 North 13th A<br>Walla Walla, WA<br>WA State Dept. o                                                                                                                    | Penitentiary<br>Avenue<br>99362<br>f Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | _ Date<br>_ Loca<br>_ Samp<br>_ Purg                                                 | tion<br>bled By<br>ed By                                                                  | 1/20/<br>B19<br>L.Linde/E.<br>(Same as al                                           | Heinitz/S.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ſ<br>Trecanni                                          |
| Casing Diameter                                                                                                                                                                                                                       | : 2" <u>X</u> 4"                                                                                                                                                                                                | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Oth                                                                                  | er                                                                                        |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                        |
| Depth to Water (<br>Depth of Well (fe<br>Reference Point (<br>Date/Time Samp<br>Purge<br>Purge<br>Calcul                                                                                                                              | $\frac{1}{10000000000000000000000000000000000$                                                                                                                                                                  | $\frac{79.93}{0.65}$ c) Top of Casing<br>$\frac{700}{100}$ of Casing<br>$\frac{700}{100}$ $\frac{100}{100}$<br>$\frac{100}{100}$ $\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{100}$<br>$\frac{100}{10$ | Purge<br>Date<br>Purge<br>Flow                                                       | e Vol. Me<br>Purged<br>e Time (fr<br>Rate (ml/<br>casing volu<br>" = (0.653<br>actual Pur | as.Method<br>om/to)<br>/min)<br>umes)<br>umes)<br>umes)<br>()(h)(#Cv);<br>ge Volume | Meas cup<br>$\mathcal{O} \mathcal{O} \mathcal{O}$<br>$\mathcal{O} \mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>$\mathcal{O}$<br>O | & stop wate<br>///<br>//////////////////////////////// |
| TIME       WA         (2400 hr)       LE         0937       8         0941       8         0949       8         0949       8         0953       8         0957       8         1002       8         1006       8         1006       8 | ATER       pH         VEL       (units)         2.40       7.44         2.65       7.32         2.65       7.20         3.01       7.20         3.85       7.21         3.85       7.21         3.52       7.19 | COND<br>(mS/cm)<br>± 3%<br>14,2<br>14,2<br>14,0<br>13,4<br>13,4<br>13,8<br>13,8<br>13,8<br>13,8<br>13,8<br>13,8<br>13,8<br>13,8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DO<br>(mg/L)<br>±10%<br>§.85<br>§.24<br>§.07<br>§.67<br>7.48<br>7.48<br>7.48<br>7.48 | TEMP<br>°C<br>14.40<br>14.49<br>19.54<br>20.23<br>20.68<br>21.90<br>21.74                 | TURB.<br>±10%<br>927<br>527<br>456<br>7070<br>396<br>306<br>302<br>734<br>256       | ORP<br>(mV)<br>±10mV<br>98<br>/A&<br>/D8<br>//2<br>/D<br>90<br>90<br>90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CUM. VO<br>(gal)                                       |
| Purge Equipmen<br>Laboratory<br>Chain-of-Custod<br>Shipment Metho                                                                                                                                                                     | t <u>Grundfos R</u><br><u><i>TECAT</i></u><br>ly (yes/no) YÉS<br>rd <i>Hund M</i>                                                                                                                               | eadyflo 2<br>Ame <i>vila</i><br>Www.ed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Sam<br>Date<br>Field<br>Split                                                        | pling Equ<br>Sent to L<br>I QC Sam<br>with (nar                                           | ipment<br>ab<br>ple Numbe<br>ne(s)/orgar                                            | Grundfos                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Readyflo 2<br>////<br>//1<br>N/A                       |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                | Gord<br>miesing a<br>Linde                                                                                                                                                                                      | ip and A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ock,                                                                                 | Page                                                                                      | 009                                                                                 | 5.<br>of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | _/                                                     |
| Froundwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ater S                                                                                         | Samplir                                                                                | ng Field                                                                | Data S                                                                                                                         | heet                                                                               | Sample #:<br>N/S                                                     | P-ANA-                                                          | ntm<br>- 11/1/1                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|
| Project Number<br>Project Name<br>Project Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 215-26<br>RI/FS<br>1313 N<br>Walla                                                             | 662-004<br>WA State P<br>Vorth 13th A<br>Walla, WA                                     | enitentiary<br>Avenue<br>99362                                          | Date<br>Loca                                                                                                                   | tion<br>bled By                                                                    | 9/19/1<br>Stormn<br>L.Linde/E.                                       | 11<br>/Afev Pi<br>Heinitz/S. <sup>-</sup>                       | 2nd<br>Frecanni                                         |
| Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | WA St                                                                                          | ate Dept. of                                                                           | f Corrections                                                           | Purg                                                                                                                           | ed By                                                                              | (Same as a                                                           | bove.)                                                          |                                                         |
| Casing Diamete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | er: 2"                                                                                         | X 4"                                                                                   | 6"                                                                      | Oth                                                                                                                            | er                                                                                 |                                                                      |                                                                 |                                                         |
| Depth to Water<br>Depth of Well (<br>Reference Point<br>Date/Time Sam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (feet)<br>feet)<br>(surveyo<br>pled                                                            | 255<br>330<br>ors notch/etc<br>9/1/11                                                  | 6<br>5<br>(7915)<br>(7915)                                              | Purg<br>Date<br>ing Purg<br>Flow                                                                                               | e Vol. Me<br>Purged<br>e Time (fi<br>r Rate (ml                                    | cas.Method<br>com/to)<br>/min)                                       | Meas cup<br>9/19/<br>0845<br>300                                | & stop watch<br>//<br>///////////////////////////////// |
| Purge<br>Purge<br>Calcu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | e Volume<br>e Volume<br>ilated Pu                                                              | Calculation<br>(gallons) for<br>rge Volume                                             | n: $(\pi r^2 h)(7.48)$<br>or 2" = $(0.16)$<br>(gallons) _1              | 8 gal/ft <sup>3</sup> )(# C<br>)(h)(#Cv); 4<br>N/A A                                                                           | Casing vol<br>" = (0.653<br>Actual Pur                                             | umes)<br>3)(h)(#Cv);<br>ge Volume                                    | 6" = (1.48)<br>(gallons)                                        | )(h)(#Cv)                                               |
| TIME W<br>(2400 hr) L<br>0845 2<br>0849 2<br>0853 2<br>9657 2<br>970 2<br>970<br>9700 2<br>970 2<br>970 2<br>970 2<br>9700 2<br>9700 2<br>9700 2<br>9700 2<br>9700 2<br>970 | ATER<br>EVEL<br>(feet)<br>5:70<br>5:74<br>5:74<br>5:74<br>5:74<br>5:74<br>5:74<br>5:74<br>5:74 | pH<br>(units)<br>± 0.1<br>5.52<br>5.67<br>5.52<br>5.67<br>5.74<br>5.74<br>5.61<br>5.61 | COND<br>(mS/cm)<br>± 3%<br>37.3<br>33.4<br>32.6<br>32.7<br>31.7<br>31.7 | DO<br>(mg/L)<br>±10%<br><u>1.13</u><br><u>0.42</u><br><u>0.33</u><br><u>0.24</u><br><u>1.20</u><br><u>0.355</u><br><u>0.87</u> | TEMP<br>°C<br>16.97<br>18.15<br>14.37<br>18.56<br>18.95<br>18.95<br>19.34<br>19.40 | TURB.<br>±10%<br>144<br>21.4<br>21.4<br>14.6<br>14.8<br>30.3<br>20.5 | ORP<br>(mV)<br>±10mV<br>//2<br>5/<br>35<br>25<br>/6<br>/2<br>/2 | CUM. VOL.<br>(gal)                                      |
| Purge Equipme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nt <u>(</u>                                                                                    | Grundfos Ro                                                                            | eadyflo 2                                                               | Sam<br>Date                                                                                                                    | pling Equ                                                                          | lipment<br>Lab                                                       | Grundfos<br>9/                                                  | Readyflo 2                                              |
| Chain-of-Custo<br>Shipment Meth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | dy (yes/r<br>od                                                                                | no) YES<br>HANA                                                                        | deliver                                                                 | Field<br>Split                                                                                                                 | d QC Sam<br>with (nat                                                              | ple Numbe<br>me(s)/orgar                                             | er s <u>e bel</u><br>nization) <u>N</u>                         | IA                                                      |
| Well Integrity<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Cro<br>DK                                                                                      | DA<br>mpR                                                                              | 28', p                                                                  | erroleu                                                                                                                        | <u>m 00</u><br>Page                                                                | lor, pu                                                              | rai wa<br>1 of                                                  | ter has or                                              |

| <b>Param</b><br>Groundwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | etrix, li<br>ter Sampli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>nC.</b><br>ng Field 1                                        | Data Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Well #:<br>Sample #:<br>WSP                                                                                                                    | mn-7<br>7-19/9/1                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 215-2662-004<br>RI/FS WA State I<br>1313 North 13th A<br>Walla Walla, WA<br>WA State Dept. o                                                                                                                                                                                                                                                                                                                                                                                                             | Penitentiary<br>Avenue<br>99362<br>f Corrections                | Date<br>Location<br>Sampled By<br>Purged By                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9/19/11<br>Darking L<br>L.Linde/E. Heini<br>(Same as above.)                                                                                   | itz/S.Trecanni                                                                                                                                                                                                                                                                                                                                         |
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | : 2" <u>X</u> 4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6"                                                              | Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                        |
| Depth to Water (<br>Depth of Well (fa<br>Reference Point<br>Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | feet) $55.1^{\circ}$<br>eet) $40.19$<br>(surveyors notch/et<br>led $1911$                                                                                                                                                                                                                                                                                                                                                                                                                                | $\frac{\text{Top of Casin}}{1030}$                              | Purge Vol. M<br>Date Purged<br>Purge Time<br>Flow Rate (1<br>201/0 <sup>3</sup> )(# Cosing A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Meas.Method Meas<br>(from/to) 100<br>nl/min) 2                                                                                                 | s cup & stop watch<br>9   11<br>16 - 1026<br>200 nr [] m in                                                                                                                                                                                                                                                                                            |
| Purge<br>Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Volume (gallons)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | for $2" = (0.16)($<br>e (gallons) <u>N</u>                      | h)(#Cv); 4" = $(0.6)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 553)(h)(#Cv); 6" = 6<br>Purge Volume (galle                                                                                                    | (1.48)(h)(#Cv)<br>ons)                                                                                                                                                                                                                                                                                                                                 |
| TIME       W/         (2400 hr)       LE         (1)       (1)         1010       5         1010       5         1014       5         10324       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5         1024       5 | ATER $pH$ EVEL       (units)         Feet) $\pm 0.1$ $5, 2$ $b, 79$ $45, 2$ $b, 58$ $1, 3$ $b, 41$ | COND<br>(mS/cm)<br>± 3%<br>53,2<br>50,0<br>50,3<br>51.7<br>57.7 | DO TEM<br>(mg/L) °C<br>$\pm 10\%$<br>9.13 $16.47.16$ $18.57.09$ $19.17.2$ $19.27.3$ $19.27.4$ $267.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.219.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.27.6$ $19.2$ $19.27.6$ $19.2$ $19.2$ $19.2$ | P TURB. O<br>$\pm 10\%$ (n<br>$\pm 10\%$<br>5 86) 7<br>3 38) 5<br>2 150 6<br>10 127 7<br>21 132 7<br>21 132 7<br>41 46 7<br>41 46 7<br>41 46 7 | RP CUM. VOL.<br>(gal)<br>mV<br>1<br>2<br>2<br>2<br>2<br>3<br>2<br>2<br>3<br>2<br>2<br>3<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>3<br>4<br>5<br>5<br>5<br>5<br>5<br>4<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5 |
| Laboratory<br>Chain-of-Custoc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ly (yes/no) YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | America<br>População                                            | Date Sent to<br>Field QC S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | o Lab<br>ample Number                                                                                                                          | A BI II<br>NA                                                                                                                                                                                                                                                                                                                                          |
| Well Integrity<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Good<br>Anter in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mmun                                                            | Nenf, mig                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ssing 1 bgtt                                                                                                                                   | , prmp, C Sg 1                                                                                                                                                                                                                                                                                                                                         |

| <b>Param</b><br>Groundwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | etrix                                                                   | <b>c, Ir</b><br>mplin                                                         | IC.<br>g Field                                                                                               | Data S                                                                                      | heet                                                                                | We<br>Sample #:<br>We                                                      | 11#: <u>nn</u><br>≈P-8-                                                             | 1-8<br>1911       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------|
| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 215-2662<br>RI/FS WA<br>1313 Nor<br>Walla Wa<br>WA State                | -004<br>A State Pe<br>th 13th Av<br>alla, WA 9<br>Dept. of (                  | nitentiary<br>venue<br>19362<br>Corrections                                                                  | Date<br>Loca<br>Samp<br>Purge                                                               | tion<br>led By <u>I</u><br>ed By <u>(</u>                                           | 9/19<br>Super<br>L.Linde/E.<br>Same as ab                                  | Heinitz/S. <sup>7</sup>                                                             | Crecanni          |
| Casing Diamete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | r: 2" X                                                                 | 4"                                                                            | 6"                                                                                                           | Oth                                                                                         | er                                                                                  |                                                                            |                                                                                     |                   |
| Depth to Water<br>Depth of Well (f<br>Reference Point<br>Date/Time Samp<br>Purge<br>Purge<br>Calcu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (feet)                                                                  | (7,7;<br>1/6,6<br>1/6/11<br>alculation:<br>(allons) for<br>Volume (           | 3<br>Top of Case<br>$(\pi r^2 h)(7.48)$<br>$(\pi r^2 h)(7.48)$<br>$(\pi r^2 h)(7.48)$<br>$(\pi r^2 h)(7.48)$ | Purge<br>Date<br>ing Purge<br>Flow<br>gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4 <sup>1</sup> | Vol. Mea<br>Purged<br>Time (fro<br>Rate (ml/<br>asing volu<br>' = (0.653            | as.Method<br>om/to)<br>min)<br>umes)<br>)(h)(#Cv);<br>ze Volume            | Meas cup<br>$n \mid n \mid$ | & stop watch      |
| TIME       W         (2400 hr)       L1         111b       6 <sup>-1</sup> 112b       8 <sup>-1</sup> 112b       8 <sup>-1</sup> 112b       8 <sup>-1</sup> 112b       8 <sup>-1</sup> 1132b       9         113b       9         112b       8 <sup>-1</sup> 112b       9         112b       9 <td>ATER<br/>EVEL (<br/>feet)<br/>7.75<br/>7.75<br/>7.75<br/>7.75<br/>7.75<br/>7.75</td> <td>pH<br/>(units)<br/>+0.1<br/>7.25<br/>7.08<br/>7.00<br/>6.97<br/>6.94<br/>6.91<br/>6.91</td> <td>COND<br/>(mS/cm)<br/>±3%<br/>51.7<br/>50.5<br/>50.3<br/>50.9<br/>49.6<br/>49.6</td> <td>DO<br/>(mg/L)<br/>±10%<br/>12.54<br/>9.58<br/>9.65<br/>9.65<br/>9.65<br/>9.65<br/>9.65</td> <td>TEMP<br/>°C<br/>17.44<br/>18,12-<br/>19.57<br/>19.58<br/>19.58<br/>19.58<br/>19.50<br/>19.32</td> <td>TURB.<br/>±10%<br/>&gt;1107<br/>1032-<br/>-38%<br/>236<br/>151<br/>151<br/>104<br/>120</td> <td>ORP<br/>(mV)<br/>±10mV<br/>76<br/>85<br/>40<br/>43<br/>43<br/>43<br/>84<br/>84</td> <td>CUM. VOL<br/>(gal)</td> | ATER<br>EVEL (<br>feet)<br>7.75<br>7.75<br>7.75<br>7.75<br>7.75<br>7.75 | pH<br>(units)<br>+0.1<br>7.25<br>7.08<br>7.00<br>6.97<br>6.94<br>6.91<br>6.91 | COND<br>(mS/cm)<br>±3%<br>51.7<br>50.5<br>50.3<br>50.9<br>49.6<br>49.6                                       | DO<br>(mg/L)<br>±10%<br>12.54<br>9.58<br>9.65<br>9.65<br>9.65<br>9.65<br>9.65               | TEMP<br>°C<br>17.44<br>18,12-<br>19.57<br>19.58<br>19.58<br>19.58<br>19.50<br>19.32 | TURB.<br>±10%<br>>1107<br>1032-<br>-38%<br>236<br>151<br>151<br>104<br>120 | ORP<br>(mV)<br>±10mV<br>76<br>85<br>40<br>43<br>43<br>43<br>84<br>84                | CUM. VOL<br>(gal) |
| Purge Equipme<br>Laboratory<br>Chain-of-Custo<br>Shipment Meth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | nt Gru                                                                  | undfos Rea<br>ecsiAM<br>YES<br>And d                                          | adyflo 2<br>111111<br>2111111                                                                                | Sam<br>Date<br>Field<br>Split                                                               | pling Equi<br>Sent to L<br>l QC Sam<br>with (nar                                    | ipment<br>ab<br>ple Number<br>ne(s)/organ                                  | Grundfos                                                                            | Readyflo 2        |
| Well Integrity<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <u>Citri<br/>Noter</u>                                                  | l<br>vie                                                                      | NONWA                                                                                                        | ent i F                                                                                     | Pimp (<br>Page                                                                      | ), 97'                                                                     | )of                                                                                 |                   |

| Paramo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | etrix, l                                                                                 | nc.                                                                                    | 8                                                                                                                                                                                       | We<br>Sample #:                                                                     | n#: <b>βγ</b> ∖ι                                                                                                                 | N-9                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Groundwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ter Sampli                                                                               | ng Field                                                                               | Data Sheet                                                                                                                                                                              | WS                                                                                  | P-9-8                                                                                                                            | 991911                               |
| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 215-2662-004<br>RI/FS WA State<br>1313 North 13th<br>Walla Walla, WA<br>WA State Dept. o | Penitentiary<br>Avenue<br>A 99362<br>of Corrections                                    | Date<br>Location<br>Sampled By<br>Purged By                                                                                                                                             | L.Linde/E. J<br>(Same as ab                                                         | IL.<br>Harny<br>Heinitz/S.7<br>pove.)                                                                                            | Frecanni                             |
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | : 2" <u>X</u> 4"                                                                         | 6"                                                                                     | Other                                                                                                                                                                                   |                                                                                     |                                                                                                                                  |                                      |
| Depth to Water (<br>Depth of Well (for<br>Reference Point (<br>Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | feet) $35.81$<br>set) $37.91$<br>(surveyors notch/e<br>led $110$ 11                      | 0<br>tc) <u>Top of Casir</u><br>1340                                                   | Purge Vol. M<br>Date Purged<br>ng Purge Time (<br>Flow Rate (m                                                                                                                          | from/to)                                                                            | Meas cup<br>4/14/11<br>1310 -<br>1/17/                                                                                           | & stop watc<br>1<br>13376<br>m[]n_1  |
| Purge<br>Purge<br>Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Volume Calculatio<br>Volume (gallons)<br>ated Purge Volum                                | on: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)(<br>e (gallons)                             | gal/ft <sup>3</sup> )(# Casing vc<br>h)(#Cv); 4" = (0.65<br>/A Actual Pu                                                                                                                | olumes)<br>53)(h)(#Cv); (<br>urge Volume)                                           | 5" = (1.48)<br>(gallons)                                                                                                         | (h)(#Cv)                             |
| TIME       W/         (2400 hr)       LE         (1)       (1)         (3)       8         (3)       8         (3)       8         (3)       8         (3)       8         (3)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       8         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         (13)       9         < | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                     | COND<br>(mS/cm)<br>±3%<br>46.8<br>46.8<br>46.8<br>46.8<br>46.8<br>46.8<br>46.8<br>46.8 | DO TEMP<br>(mg/L) °C<br>±10%<br>1D.20 17.44<br>9.67 18.88<br>9.67 20.44<br>9.67 20.44<br>9.67 20.44<br>9.67 20.44<br>9.67 20.56<br>9.10 20.56<br>9.10 20.56<br>8.91 21.26<br>8.88 22.57 | TURB.<br>$\pm 10\%$<br>90%<br>90%<br>30%<br>40%<br>32%<br>24%<br>24%<br>126<br>3160 | ORP<br>(mV)<br>±10mV<br><u>45</u><br><u>11275</u><br><u>98</u><br><u>94</u><br><u>89</u><br><u>71</u><br><u>126</u><br><u>61</u> |                                      |
| Purge Equipmen<br>Laboratory<br>Chain-of-Custod<br>Shipment Metho                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | t <u>Grundfos F</u><br><u>Teest</u><br>ly (yes/no) YES<br>id <u>Han M</u>                | Readyflo 2<br>America<br>Aeliverz                                                      | Sampling Eq<br>Date Sent to<br>Field QC San                                                                                                                                             | uipment<br>Lab<br>nple Number<br>ame(s)/organi                                      | Grundfos I                                                                                                                       | Readyflo 2<br>27/ //<br>1/ A<br>1/ A |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Grond<br>Grond Stor<br>Lindle                                                            | - C 84 F                                                                               | 7<br>Pag                                                                                                                                                                                | e/                                                                                  | of                                                                                                                               | _/                                   |

# Parametrix, Inc.

Well #: MW-10

| Long and blacks a                                                         | 215-20                                  | 52-004                                           |                                                       | Date                                            | 4: a.m.                                        | - 104/11<br>DAN 11                      | ale                                |                                       |
|---------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------|-------------------------------------------------------|-------------------------------------------------|------------------------------------------------|-----------------------------------------|------------------------------------|---------------------------------------|
| Project Name                                                              | $\frac{\text{RI/FS }}{1212 \text{ NI}}$ | S WA State Penitentiary                          |                                                       | Loca                                            | tion                                           |                                         | MARS                               |                                       |
| Project Address                                                           | Walla V                                 | orui 15111 A<br>Valla WA                         | 99362                                                 | Sami                                            | oled By                                        | L.Linde/E. F                            | leinitz/S.                         | Trecanni                              |
| Client Name                                                               | WA Sta                                  | ate Dept. of                                     | Corrections                                           | Purg                                            | ed By                                          | (Same as abo                            | ove.)                              |                                       |
| Casing Diameter                                                           | :: 2"                                   | X_4"                                             | 6"                                                    | Oth                                             | er                                             |                                         |                                    |                                       |
| Depth to Water (<br>Depth of Well (f<br>Reference Point<br>Date/Time Samp | (feet)<br>eet)<br>(surveyo<br>bled      | <b>7</b> 2.04<br>83.04<br>rs notch/etc<br>120/11 | )<br>D<br>) <u>Top of Casi</u><br>  55                | Purg<br>Date<br>ng Purg<br>Flow                 | e Vol. Me<br>Purged<br>e Time (f<br>r Rate (m) | eas.Method <u>1</u><br>rom/to)<br>/min) | Meas cup<br>1/20/1<br>1/34<br>L/12 | & stop watch<br>1<br>115D<br>17 ml/mi |
| Purge<br>Purge<br>Calcu                                                   | Volume<br>Volume<br>lated Pur           | Calculation<br>(gallons) fo<br>ge Volume         | a: $(\pi r^2 h)(7.48)$<br>or 2" = (0.16)<br>(gallons) | gal/ft <sup>3</sup> )(# C<br>(h)(#Cv); 4<br>I/A | Casing vol<br>" = (0.65<br>Actual Put          | umes)<br>3)(h)(#Cv); 6<br>rge Volume (  | 5" = (1.48)<br>(gallons)           | )(h)(#Cv)                             |
|                                                                           |                                         | ъU                                               | COND                                                  | DO                                              | TEMP                                           | TURB                                    | ORP                                | CUM VOL                               |
| (2400  hr) LI                                                             | EVEL                                    | units)                                           | (mS/cm)                                               | (mg/L)                                          | °C                                             | $\pm 10\%$                              | (mV)                               | (gal)                                 |
|                                                                           | feet)                                   | ± 0.1                                            | ± 3%                                                  | ±10%                                            |                                                |                                         | ±10mV                              |                                       |
| 1134 76                                                                   | <u>,13</u>                              | 7.05                                             | 42.0                                                  | 9.92                                            | 17.01                                          | TIDD                                    | 107                                |                                       |
| 1138 70                                                                   | 2.1D                                    | <u>pgj</u>                                       | 434                                                   | 8.30                                            | 19:35                                          | 452                                     | 104                                | <u></u>                               |
| 1142 70                                                                   | 212                                     | 6.50                                             | 427                                                   | 8.20                                            | 19:08                                          | 241                                     | Gil                                |                                       |
| 1140 70                                                                   | 2.12                                    | 1283                                             | 61.2                                                  | 8.21                                            | 19.44                                          | 153                                     | 92                                 | YAN                                   |
| 1130                                                                      | - 10-                                   | <u><u> </u></u>                                  |                                                       |                                                 |                                                |                                         |                                    | J.                                    |
|                                                                           |                                         |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
|                                                                           |                                         |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
|                                                                           |                                         |                                                  |                                                       |                                                 | -                                              |                                         |                                    |                                       |
|                                                                           |                                         |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
|                                                                           |                                         |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
|                                                                           | •                                       |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
|                                                                           | <u> </u>                                |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
|                                                                           |                                         |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |
| <b>D D</b> .                                                              |                                         | - 10 D                                           | - 1- A - 2                                            |                                                 | nlin o E or                                    | inmont (                                | Crundfor                           | Ponduflo 2                            |
| Purge Equipment                                                           | nt <u>c</u>                             | stundios Ke                                      |                                                       | Sam                                             |                                                |                                         |                                    | /                                     |
| Laboratory                                                                | _                                       | Tectt                                            | merila                                                | Date                                            | e Sent to                                      | Lab                                     | 95                                 | 21/11                                 |
| Chain-of-Custo                                                            | dy (yes/n                               | (0) YES                                          | A play ou                                             | Fiel                                            | d QC San                                       | nple Number                             | /                                  | N/A                                   |
| Shipment Meth                                                             | od <u>-</u>                             | furne                                            | nurvere                                               | <u>er</u> spir                                  |                                                | me(s)/orgam                             |                                    | N/24                                  |
|                                                                           |                                         |                                                  |                                                       |                                                 |                                                |                                         |                                    |                                       |

U:\Puya\Projects\Clients\2662-WSDOC\215-2662-004-RI-FS WallaWallaStPnitntry\02 WBS\PAM1-RI FieldInvestgte\T06-Groundwater Sampling\Blank GW Form.doc

1

| <b>Param</b><br>Groundwa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | etrix, li<br>iter Samplin                                                                    | <b>1C.</b><br>ng Field D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | oata Sl                                                                                                                            | neet                                                                                                  | We<br>ample #:<br>W <sup>2</sup>                           | n#: <u>N</u><br>SP/1-                                                                                                                                                                                                                                                  | 1W -11<br><b>Q</b> AZU11               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Project Number<br>Project Name<br>Project Address<br>Client Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 215-2662-004<br>RI/FS WA State F<br>1313 North 13th A<br>Walla Walla, WA<br>WA State Dept. o | Penitentiary<br>Avenue<br>99362<br>f Corrections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Date<br>Locati<br>Sampl<br>Purged                                                                                                  | on $\frac{1}{2}$<br>ed By <u>I</u><br>d By <u>(</u>                                                   | 1/201<br>1/1/1/<br>.Linde/E. 1<br>Same as ab               | Heinitz/S.                                                                                                                                                                                                                                                             | Frecanni                               |
| Casing Diameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | :: 2" <u>X</u> 4"                                                                            | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Othe                                                                                                                               | r<br>                                                                                                 |                                                            |                                                                                                                                                                                                                                                                        |                                        |
| Depth to Water (<br>Depth of Well (for<br>Reference Point of<br>Date/Time Samp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | feet) <u> </u>                                                                               | c) Top of Casing<br>$\frac{110}{110}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Purge<br>Date F<br>g Purge<br>Flow I                                                                                               | Vol. Mea<br>Purged<br>Time (fro<br>Rate (ml/r                                                         | s.Method<br>m/to)<br>nin)                                  | Meas cup<br>9/21/<br>110439-<br>350/                                                                                                                                                                                                                                   | & stop watch<br>11<br>1103<br>U.J.M.K. |
| Purge<br>Purge<br>Calcul                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Volume (gallons) f<br>lated Purge Volume                                                     | $\frac{n!}{2} (\pi r n)(7.48 \text{ gas}) = (0.16)(h)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | (#Cv); 4"                                                                                                                          | = (0.653)<br>ctual Purg                                                                               | (h)(#Cv); (<br>e Volume                                    | 6" = (1.48)<br>(gallons)                                                                                                                                                                                                                                               | (h)(#Cv)                               |
| TIME       W/         (2400 hr)       LE         (1)       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         10       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1)         11       (1) | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                         | COND<br>(mS/cm)<br>$D^{\pm} 3\%$<br>$D^{-} / D S/m$<br>$O \cdot I D D$<br>$O \cdot I D D$<br>$O \cdot I D D$<br>$O \cdot I D D$<br>$D \cdot I D D$<br>D - D - D - D D<br>D - D - D - D - D - D - D - D - D - D - | DO<br>(mg/L)<br>±10%<br><u>8.19</u><br>7.70<br>7.75<br>7.53<br>7.41<br>7.51<br>7.51<br>7.51<br>7.51<br>7.51<br>7.51<br>7.51<br>7.5 | TEMP<br>°C<br>19. [2]<br>21. [2<br>22. [2<br>22. 7]<br>22. 3]<br>22. 3]<br>22. 3]<br>22. 12<br>22. 3] | TURB.<br>±10%<br>>1000<br>1000<br>1000<br>1000<br>1000<br> | ORP<br>(mV)<br>±10mV<br>114<br>707<br>82<br>70<br>67<br>67<br>64<br>67<br>64<br>67<br>67<br>64<br>67<br>67<br>64<br>67<br>67<br>64<br>67<br>67<br>64<br>67<br>67<br>64<br>67<br>67<br>64<br>67<br>67<br>67<br>67<br>67<br>67<br>67<br>67<br>67<br>67<br>67<br>67<br>67 | CUM. VOL.<br>(gal)                     |
| Laboratory<br>Chain-of-Custoc<br>Shipment Metho                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | y (yes/no) YES                                                                               | NEV 16U<br>Calelivere                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date S<br>Field<br>Split                                                                                                           | Sent to La<br>QC Samp<br>with (nam                                                                    | b<br>le Number<br>e(s)/organ                               | ization) N                                                                                                                                                                                                                                                             | 0// //<br>//4<br>//A                   |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CIPOR<br>Sprmpe 7:                                                                           | 2', wate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | rin                                                                                                                                | VVV/MV<br>Page                                                                                        | 1 mint                                                     | 0<br>/ of                                                                                                                                                                                                                                                              | /                                      |

5

١.

,

| Paramo                                                                                                 | etr                                                                                                                                                      | ix, lı                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                    |                                                                                                            | W<br>Sample #:                                                                            | ell #:                                                                              | V-12                                 |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|
| Groundwa                                                                                               | ter S                                                                                                                                                    | Samplii                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ng Field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Data                                                               | Sheet                                                                                                      | WSP.                                                                                      | 12-199                                                                              | R0/1                                 |
| Project Number<br>Project Name<br>Project Address<br>Client Name                                       | Project Number215-2662-004Project NameRI/FS WA State PenitentiaryProject Address1313 North 13th AvenueWalla Walla, WA 99362WA State Dept. of Corrections |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Dat<br>Loc<br>San<br>Pur                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | e<br>ation<br>npled By<br>ged By                                   | <u>Ahof</u><br>D2[th<br>L.Linde/E.<br>(Same as a                                                           | App/II<br>Defta Unit<br>L.Linde/E. Heinitz/S.Trecanni<br>(Same as above.)                 |                                                                                     |                                      |
| Casing Diameter                                                                                        | : 2"                                                                                                                                                     | X_4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 6"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Ot                                                                 | her                                                                                                        |                                                                                           |                                                                                     |                                      |
| Depth to Water (<br>Depth of Well (fr<br>Reference Point<br>Date/Time Samp<br>Purge<br>Purge<br>Calcul | feet)<br>eet)<br>(survey<br>led<br>Volume<br>Volume<br>ated Pu                                                                                           | 6 $%$ . $(x, y)7$ $(x, y)ors notch/eta(y, y)$ $(y)(y, y)$ $(y)(y)$ $(y)(y)$ $(y)(y)$ $(y)(y)$ $(y)(y)$ $(y)(y)$ $(y)(y)(y)$ $(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)(y)$ | /<br>c) Top of Cas<br>0.315<br>n: $(\pi r^2 h)(7.48)$<br>for 2" = (0.16)<br>(gallons) 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pur<br>Dat<br>Dat<br>Flov<br>gal/ft <sup>3</sup> )(#<br>0(h)(#Cv); | ge Vol. M<br>e Purged<br>ge Time (<br>w Rate (m<br>Casing vo<br>4" = (0.65<br>Actual Pu                    | eas.Method<br>from/to)<br>l/min)<br>lumes)<br>3)(h)(#Cv);<br>rge Volume                   | $\frac{Meas cup}{9/20/11}$ $\frac{0.751}{2400 12}$ $6^{\circ} = (1.48)$ (gallons)   | & stop watch<br>- Q811<br>1. U[1111/ |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                   | ATER<br>EVEL<br>feet)<br>2.26<br>2.26<br>2.21<br>2.21<br>2.21                                                                                            | pH<br>(units)<br>± 0.1<br>5.94<br>(                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | $\begin{array}{c} \text{COND} \\ (\text{mS/cm}) \\ \pm 3\% \\ 63.8 \\ 62.0 \\ 61.8 \\ 61.7 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ 61.9 \\ $ | DO<br>(mg/L)<br>±10%<br>7.95<br>3.7.45<br>7.53<br>7.53             | TEMP<br>°C<br><i>16.03</i><br><i>16.93</i><br><i>18.15</i><br><i>18.83</i><br><i>18.52</i><br><i>18.52</i> | TURB.<br>±10%<br>>1070<br>>1070<br>>1070<br>>1070<br>>1070<br>>1070<br>>1070<br>>1070<br> | ORP<br>(mV)<br>±10mV<br>/85<br>/64<br>/53<br>/47<br>/43                             | CUM. VOL<br>(gal)                    |
| Purge Equipmen<br>Laboratory<br>Chain-of-Custor<br>Shipment Metho                                      | ly (yes/i                                                                                                                                                | Grundfos Ro<br><i>TecHII</i><br>10), YES<br>Hand                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | eadyflo 2<br>NHV JAN<br>Áll IV V V E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Sar<br>Da<br>Fie<br>Spl                                            | npling Eq<br>te Sent to<br>ld QC Sau<br>it with (na                                                        | uipment<br>Lab<br>nple Numbe<br>ime(s)/organ                                              | $\frac{\text{Grundfos}}{\frac{\ell_1}{2}}$ er $\frac{\ell_1}{2}$ hization) <u>N</u> | Readyflo 2<br>21/11<br>1/14<br>1/14  |
| Well Integrity<br>Remarks                                                                              | - Gr                                                                                                                                                     | od<br>mpe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 72', Wi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ater in                                                            | n m gn                                                                                                     | umen-                                                                                     | 4                                                                                   |                                      |

| <b>Param</b><br>Groundw                                                                                         | etr<br>ater S                                                                                          | i <b>x, Ir</b><br>Samplin                                                                      | <b>IC.</b><br>g Field                                                                           | Data S                                                                                       | Sheet                                                                     | Wo<br>Sample #:<br>WSP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | en #: <u>MA</u><br> 3- <b>9</b> 16                                                         | 27-13<br>2011                        |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------|
| Project Number<br>Project Name<br>Project Address                                                               | 215-26<br><u>RI/FS</u><br>1313 N                                                                       | 662-004<br>WA State Pe<br>North 13th A                                                         | enitentiary<br>venue                                                                            | Date<br>Loc                                                                                  | e<br>ation                                                                | 9/20/<br>Perin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | il<br>neter f                                                                              | A Cump                               |
| Client Name                                                                                                     | Walla<br>WA St                                                                                         | Walla, WA<br>ate Dept. of                                                                      | 99362<br>Corrections                                                                            | Sam                                                                                          | pled By<br>ged By                                                         | L.Linde/E.<br>(Same as al                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Heinitz/S.<br>pove.)                                                                       | Trecanni                             |
| Casing Diamete                                                                                                  | er: 2"                                                                                                 | X_4"                                                                                           | 6"                                                                                              | Ot                                                                                           | her                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                            |                                      |
| Depth to Water<br>Depth of Well (<br>Reference Poin<br>Date/Time Sam                                            | (feet) _<br>(feet) _<br>t (surveye<br>pled _                                                           | $\frac{52.12}{54.5}$ ors notch/etc<br>$\frac{9}{20}$                                           | ) Top of Cas<br>1350                                                                            | Pury Date ing Pury Flov                                                                      | ge Vol. Me<br>e Purged<br>ge Time (fi<br>w Rate (ml                       | eas.Method<br>rom/to)<br>/min)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Meas cup<br>9/Qp/<br>1314 -<br>1470 h                                                      | & stop watch<br>11<br>1346<br>24/min |
| Purg<br>Purg<br>Calc                                                                                            | e Volume<br>e Volume<br>ulated Pu                                                                      | e Calculatior<br>(gallons) fo<br>rge Volume                                                    | $\begin{array}{l} (\pi r^{2}h)(7.48) \\ (r 2)^{2} = (0.16) \\ (gallons) \\ \end{array}$         | gal/ft <sup>3</sup> )(#<br>(h)(#Cv);<br><del>\</del> /A                                      | Casing vol<br>4" = (0.653<br>Actual Pur                                   | umes)<br>3)(h)(#Cv);<br>ge Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6" = (1.48<br>(gallons)                                                                    | )(h)(#Cv)                            |
| TIME W<br>(2400 hr) I<br>13/4 5<br>13/8 5<br>1320 5<br>1320 5<br>1330 5<br>1331 5<br>1338 5<br>1340 5<br>1340 5 | ATER<br>EVEL<br>(feet)<br>2,16<br>2,15<br>2,14<br>2,14<br>2,14<br>2,14<br>2,14<br>2,14<br>2,14<br>2,14 | pH<br>(units)<br>± 0.1<br>7,11<br>6.86<br>9.77<br>6.76<br>6.75<br>6.75<br>6.75<br>6.74<br>6.75 | COND<br>(mS/cm)<br>± 3%<br>52.D<br>52.D<br>52.A<br>52.3<br>52.3<br>52.3<br>52.3<br>52.2<br>53.2 | DO<br>(mg/L)<br>±10%<br>7.18<br>7.18<br>7.47<br>6.43<br>6.42<br>7.31<br>6.64<br>6.85<br>6.86 | TEMP<br>°C<br>20,13<br>19.06<br>20.25<br>21.01<br>18.94<br>19.09<br>20.69 | TURB.<br>±10%<br>2 1000<br>7 10000<br>7 100000<br>7 100000<br>7 10000000000<br>7 1000000000000000000000000000000000000 | ORP<br>(mV)<br>±10mV<br>//3<br>//7<br>//7<br>//7<br>//7<br>//7<br>//7<br>//7<br>//7<br>//7 | CUM. VOL.<br>(gal)                   |
| Purge Equipme                                                                                                   | ent g                                                                                                  | Grundfos Re                                                                                    | adyflo 2                                                                                        | Sar                                                                                          | npling Equ                                                                | ipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grundfos                                                                                   | Readyflo 2                           |
| Laboratory<br>Chain-of-Custo<br>Shipment Meth                                                                   | ody (yes/i                                                                                             | Teistr<br>10) YES                                                                              | America<br>Lelver                                                                               | Dat<br>Fie<br>E                                                                              | te Sent to I<br>ld QC San<br>it with (na                                  | _ab<br>ple Numbe<br>me(s)/orgar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | r<br>nization) 1                                                                           | 21/11<br>N//A<br>N/A                 |

| Well Integrity | REST Directo around curfull. |  |
|----------------|------------------------------|--|
| Signature Amil | Page of                      |  |
|                |                              |  |

| arametrix, Inc.<br>Groundwater Sampling Field                                                                                                                                                                                                                                                                                                                                                                            | Well #:<br>Sample #:<br><b>Data Sheet</b> WSP-14-2902011                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Number215-2662-004Project NameRI/FS WA State PenitentiaryProject Address1313 North 13th AvenueWalla Walla, WA 99362WA State Dept. of Corrections                                                                                                                                                                                                                                                                 | Date<br>Location<br>Sampled By<br>Purged By (Same as above.)                                                                                   |
| Casing Diameter: 2" X 4"6"                                                                                                                                                                                                                                                                                                                                                                                               | Other                                                                                                                                          |
| Depth to Water (feet)<br>Depth of Well (feet)<br>Reference Point (surveyors notch/etc) Top of Ca<br>Date/Time Sampled<br>921117435                                                                                                                                                                                                                                                                                       | Purge Vol. Meas.Method Meas cup & stop watch<br>Date Purged<br>Date Purge Time (from/to)<br>Flow Rate (ml/min)<br>200 mL/ML                    |
| Purge Volume Calculation: $(\pi r^2 h)(7.4)$<br>Purge Volume (gallons) for 2" = (0.16)<br>Calculated Purge Volume (gallons)                                                                                                                                                                                                                                                                                              | 8 gal/ft <sup>3</sup> )(# Casing volumes)<br>5)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)<br><u>N/A</u> Actual Purge Volume (gallons) |
| TIME       WATER       pH       COND         (2400 hr)       LEVEL       (units)       (mS/cm) $(141'3)$ (16:32)       6:93       0.103' $141'3$ (16:32)       6:93       0.103' $141'3$ (16:32)       0.103' $141'3$ (16:32)       0.103' $141'3$ (16:32)       0.103' $141'3$ (16:32)       0.103' $142'3$ (16:32)       0.107' $142'3$ (16:32)       0.107' $142'3$ (16:32)       0.107' $142'3$ (16:32)       0.107' | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                                                          |
| Purge Equipment Grundfos Readyflo 2                                                                                                                                                                                                                                                                                                                                                                                      | Sampling Equipment Grundfos Readyflo 2                                                                                                         |
| Laboratory Test Amenica<br>Chain-of-Custody (yes/no) YES<br>Shipment Method Hand Alliver                                                                                                                                                                                                                                                                                                                                 | Date Sent to Lab<br>Field QC Sample Number<br>Split with (name(s)/organization) N/A                                                            |
| Well Integrity <u>CAUTUA</u><br>Remarks <u>pwmpf. 7D'</u><br>Signature                                                                                                                                                                                                                                                                                                                                                   | Page / of /                                                                                                                                    |

| Parametr<br>Groundwater                                                                                                                                                                                                                                                                                                            | <b>ix, Inc.</b><br>Sampling Field                                                                                | Data Sheet                                                                                                       | Wel<br>Sample #:                                                         | 1#MV-13                                                  | 5<br>14911 V                                             | <br>NSP-15- |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|-------------|
| Project Number 215-2<br>Project Name RI/FS<br>Project Address 1313<br>Walla<br>Client Name WA S                                                                                                                                                                                                                                    | 2662-004<br>S WA State Penitentiary<br>North 13th Avenue<br>a Walla, WA 99362<br>State Dept. of Corrections      | Date<br>Location<br>Sampled By<br>Purged By                                                                      | 1919<br>Trainin<br>L.Linde/E. I<br>(Same as ab                           | 11<br><u>Cente</u><br>Teinitz/S.<br>ove.)                | Z//                                                      |             |
| Casing Diameter: 2"                                                                                                                                                                                                                                                                                                                | X_4"6"                                                                                                           | Other                                                                                                            |                                                                          |                                                          |                                                          |             |
| Depth to Water (feet)<br>Depth of Well (feet)<br>Reference Point (survey<br>Date/Time Sampled                                                                                                                                                                                                                                      | $\frac{19.54}{10.74}$ yors notch/etc) Top of Casin<br>$\frac{9}{19} \frac{19}{11} \frac{1}{7.235}$               | Purge Vol. Me<br>Date Purged<br>ng Purge Time (fi<br>Flow Rate (ml                                               | com/to)                                                                  | Meas cup<br>9 19<br><del>12-30</del><br>300              | & stop watcl<br>1]<br>- 1214 - 1<br>M [11111<br>M [11111 | -<br>       |
| Purge Volum<br>Purge Volum<br>Calculated P                                                                                                                                                                                                                                                                                         | the Calculation: $(\pi r^2h)(7.48 \text{ g})$<br>the (gallons) for 2" = (0.16)(<br>the Volume (gallons) <u>N</u> | gal/ft <sup>3</sup> )(# Casing vol<br>h)(#Cv); 4" = (0.652<br>/A Actual Pur                                      | umes)<br>3)(h)(#Cv); 6<br>ge Volume (                                    | 5" = (1.48)<br>(gallons)                                 | )(h)(#Cv)                                                |             |
| TIME       WATER         (2400 hr)       LEVEL         1214       19.51         1218       91.51         12230       91.58         1230       91.57         1230       91.57         1230       91.57         1230       91.57         1230       91.57         1230       91.57         1230       91.57         1230       91.57 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                            | DO TEMP<br>(mg/L) °C<br>±10%<br>&.05 16.68<br>7.86 17.81<br>7.82 18.14<br>7.75 14.54<br>7.75 14.54<br>7.51 20.91 | ТURВ.<br>±10%<br>71000<br><u>71000</u><br><u>71000</u><br>71000<br>71000 | ORP<br>(mV)<br>±10mV<br>78<br>85<br>95<br>97<br>97<br>97 | CUM. VOL<br>(gal)                                        |             |
| Purge Equipment                                                                                                                                                                                                                                                                                                                    | Grundfos Readyflo 2                                                                                              | Sampling Equ                                                                                                     | ipment (                                                                 | Grundfos                                                 | Readyflo 2                                               |             |
| Laboratory<br>Chain-of-Custody (yes<br>Shipment Method                                                                                                                                                                                                                                                                             | Test America<br>(no) YES,<br>Hand delivere                                                                       | Date Sent to I<br>Field QC Sam<br>Split with (nat                                                                | .ab<br>ple Number<br>me(s)/organi                                        | $\frac{-9}{1}$                                           | 2// 11<br>N/ LA<br>I/A                                   | _           |
| Well Integrity<br>Remarks<br>Signature                                                                                                                                                                                                                                                                                             | mp set c 105                                                                                                     | 5 <del>17</del><br>Page                                                                                          |                                                                          | of                                                       | ,                                                        | _           |

τ.

| Well Number                                   | MW-1                        | <br>Date                                   | 12-13-11           | 12:50     |  |
|-----------------------------------------------|-----------------------------|--------------------------------------------|--------------------|-----------|--|
| Project Name                                  | WSP gw                      | <br>Sampled By                             | EHIST              | 12/3/1-01 |  |
| Depth to Water<br>Depth of Well<br>Pump Depth | <u>59.72'</u><br>67'<br>64' | <br>Purge Flow Rate<br>Water Column Volume | 700 mL/min<br>4gal |           |  |
| Purge Time                                    | 12:57-1310                  | <br>Actual Purge Volume                    | 4.5 gal            |           |  |
| Notes                                         | ample @ 1310                | <br>                                       |                    | <u></u>   |  |
|                                               |                             |                                            |                    |           |  |

| Well Number    | MW-2         | Date                | 12-13-11 | 1328      |
|----------------|--------------|---------------------|----------|-----------|
| Project Name   | WSP gw       | Sampled By          | EM \$51  | 191211-00 |
| Depth to Water | 42.44'       | Purge Flow Rate     | 800 mL/n | 110       |
| Depth of Well  | 51'          | Water Column Volume | 4.5 gal  |           |
| Pump Depth     | 48'          |                     |          |           |
| Purge Time     | 1330 - 1340  | Actual Purge Volume |          |           |
| Notes          | amale @ 1340 |                     |          |           |
|                |              |                     |          |           |

| Well Number    | MVV-3                         | Date                | 12-13-11  | 1442      |
|----------------|-------------------------------|---------------------|-----------|-----------|
| Project Name   | WSP 9W                        | Sampled By          | EHAST     | 121311-03 |
| Donth to Water |                               | Purge Flow Rate     | 7.50 mL/m | Y IN      |
| Depth of Well  | 80'                           | Water Column Volume | 5 aal     |           |
| Pump Depth     | 771 (approx - not hit bottom) |                     |           |           |
| Purge Time     | 1452-1507                     | Actual Purge Volume | 4 gal     |           |
| Notes <u> </u> | Rmple @ 1507                  |                     |           |           |
|                |                               |                     |           |           |

| Well Number<br>Project Name                   | MW-5<br>WSP gw                       | Date<br>Sampled By                     | 12-12-14-11 1325<br>EH & ST        |
|-----------------------------------------------|--------------------------------------|----------------------------------------|------------------------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | 79,891<br>102'<br>unknown - 85-90 04 | Purge Flow Rate<br>Water Column Volume | 700.ml./.min<br>10 gal             |
| Purge Time                                    | 1383 - 1348                          | Actual Purge Volume                    | 4.5 gal                            |
| Notes                                         | mpled @ 1348                         |                                        |                                    |
|                                               |                                      |                                        |                                    |
|                                               |                                      |                                        |                                    |
| Well Number<br>Project Name                   | MW-6<br>WSP gw                       | Date<br>Sampled By                     | 12-13-11 8:45<br>EH & ST 121311-06 |
| Depth to Water                                | 26,47'                               | Purge Flow Rate                        | 750 mL/min                         |
| Depth of Well<br>Pump Depth                   | 30'<br>27'                           | Water Column Volume                    | 1.5 gaz                            |
| Purge Time                                    | 8:53-9:05                            | Actual Purge Volume                    | 6 gal                              |
| Notes <u>Sov</u>                              | impled @ 9:05 - slight petr          | oleum odor, no si                      | <u>Cen</u>                         |
|                                               |                                      |                                        |                                    |
|                                               |                                      |                                        |                                    |
| Well Number                                   | MW-7                                 | Date                                   | 12-13-11 10:15                     |
| Project Name                                  | WSP gw                               | Sampled By                             | EH4ST 121311-07                    |
| Depth to Water                                | 55.13                                | Purge Flow Rate                        | 850 mL/min                         |
| Depth of Well<br>Pump Depth                   | 53'                                  |                                        | <u> </u>                           |
| Purge Time                                    | 10:28-10:37                          | Actual Purge Volume                    | 4 gal                              |
| Notes <u>Sa</u>                               | mpled @ 10:37 - water in             | well bore, prozen                      |                                    |
|                                               |                                      |                                        |                                    |

| Well Number<br>Project Name                   | MW-8<br>WSP gw                              | Date<br>Sampled By                     | 12-13-11<br>EH&ST                     | -10:50<br>121311-08 |
|-----------------------------------------------|---------------------------------------------|----------------------------------------|---------------------------------------|---------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | 87.361<br>95'<br>93' (approx - didn + hitbl | Purge Flow Rate<br>Water Column Volume | 700 mL/m<br>3.5 gal                   | in                  |
| Purge Time                                    | 11:02-11:17                                 | Actual Purge Volume                    |                                       |                     |
| Notes <u>S</u>                                | ample @ 11:15 - water in                    | well bore, frozen                      |                                       |                     |
|                                               |                                             |                                        | · · · · · · · · · · · · · · · · · · · |                     |
|                                               |                                             |                                        |                                       |                     |
| Well Number<br>Project Name                   | MW-9<br>WSP gw                              | Date<br>Sampled By                     | 12-13-11<br>EH&ST                     | 12:11<br>12:311-09  |
| Depth to Water<br>Depth of Well<br>Pump Depth | 81.01'<br>90'<br>87'                        | Purge Flow Rate<br>Water Column Volume | 750 mL/.<br>4.5 gcl                   | min                 |
| Purge Time                                    | 12:18-12:35                                 | Actual Purge Volume                    | <u>5 gal</u>                          |                     |
| Notes                                         | sample @12:35                               |                                        |                                       |                     |

| Well Number<br>Project Name                   | MW-10<br>WSP gw      | Date<br>Sampled By                  | 12-14-11            | 1150     |
|-----------------------------------------------|----------------------|-------------------------------------|---------------------|----------|
| Depth to Water<br>Depth of Well<br>Pump Depth | 72.12'<br>85'<br>82' | Purge Flow Rate Water Column Volume | 625 mL/m<br>6.5 gal | <u>.</u> |
| Purge Time                                    | 1203-1215            | Actual Purge Volume                 | 4 gal               |          |
| Notes <u>So</u>                               | mple @ 1215          |                                     |                     |          |

| Well Number<br>Project Name                   | MW-11<br>WSP gw      | Date<br>Sampled By                     | 12-14-11<br>EH&ST   | 1234<br>121411-1 |
|-----------------------------------------------|----------------------|----------------------------------------|---------------------|------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | <u> </u>             | Purge Flow Rate<br>Water Column Volume | 750 mL/min<br>4 gal |                  |
| Purge Time                                    | 1240 - 1253          | Actual Purge Volume                    | 4 gal               |                  |
| Notes _S                                      | ample @ 1253         |                                        |                     |                  |
|                                               |                      |                                        |                     |                  |
|                                               |                      |                                        |                     |                  |
| Well Number<br>Project Name                   | MW-12<br>WSP gw      | Date<br>Sampled By                     | 12-14-11<br>EHIAST  | 1435             |
| Depth to Water<br>Depth of Well<br>Pump Depth | 68.751<br>76'<br>73' | Purge Flow Rate Water Column Volume    | 725 mL/min<br>4 gal |                  |
| Purge Time                                    | 1443 - 1454          | Actual Purge Volume                    | 4 gal               |                  |

Notes

sample (a) 1454

| Well Number<br>Project Name                   | MW-13<br>6 JSP gui           | Date<br>Sampled By                     | 12-14-11<br>EHast   | 1017<br>121411-13 |
|-----------------------------------------------|------------------------------|----------------------------------------|---------------------|-------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | <u>57 25 '</u><br>56<br>53 ' | Purge Flow Rate<br>Water Column Volume | 550 ml/mi.<br>G gal | <u> </u>          |
| Purge Time                                    | 1027-1037                    | Actual Purge Volume                    | 4 gal               |                   |
| Notes                                         | ample @ 1037                 |                                        |                     |                   |

| Well Number<br>Project Name                   | MW-14<br>WSP gw | Date<br>Sampled By                  | 12 13.11<br>EH 4 ST | 1526<br>121311 - 14 |
|-----------------------------------------------|-----------------|-------------------------------------|---------------------|---------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | 67'             | Purge Flow Rate Water Column Volume | 550 mL/r<br>1.5 gal | nin                 |
| Purge Time                                    | 1435 - 1450     | Actual Purge Volume                 | 4.5 gal             |                     |
| Notes                                         | Sample @ 1450   |                                     |                     |                     |

| Well Number<br>Project Name                   | MW-15<br>USP gw                                    | Date<br>Sampled By                     | 12-14-11<br>EHAST     | 925<br>1214/1-15 |
|-----------------------------------------------|----------------------------------------------------|----------------------------------------|-----------------------|------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | 99.68'<br>110'<br>105 (approx - didn't hit bottom) | Purge Flow Rate<br>Water Column Volume | 600 mL/mi.<br>5.5 gal | <u>n</u>         |
| Purge Time                                    | 732-950                                            | Actual Purge Volume                    | 4 gal                 |                  |
| Notes                                         | mple @ 950                                         |                                        |                       |                  |

| Well Number<br>Project Name                   | SMW-7 | DateSampled By                         |
|-----------------------------------------------|-------|----------------------------------------|
| Depth to Water<br>Depth of Well<br>Pump Depth | 181'  | Purge Flow Rate<br>Water Column Volume |
| Purge Time                                    |       | Actual Purge Volume                    |
| Notes                                         |       |                                        |
|                                               |       |                                        |

## Appendix H

Laboratory Reports

This information is available upon request by calling (509) 329-3415.

Appendix I Vapor Intrusion Statistic Reports

### TCE

| Number of samples          |         | Uncensored values        |                   |  |
|----------------------------|---------|--------------------------|-------------------|--|
| Uncensored                 | 64      | Mean                     | 0.78              |  |
| Censored                   |         | Lognormal mean           | 0.88              |  |
| Detection limit or PQL     |         | Std. devn.               | 0.811035845       |  |
| Method detection limit     |         | Median                   | 0.46              |  |
| TOTAL                      | 64      | Min.                     | 0.1               |  |
|                            |         | Max.                     | 3.3               |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
| Lognormal distribution?    |         | Normal distribution?     |                   |  |
| r-squared is:              | 0.820   | r-squared is:            | 0.824             |  |
| Recommendations:           |         |                          |                   |  |
|                            |         |                          |                   |  |
| Reject BOTH lognormal ar   | nd norm | al distributions. See St | atistics Guidance |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
| UCL (Land's method) is 1.3 | 341022  | 03534992                 |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |
|                            |         |                          |                   |  |

#### Tetrachloroethylene

| Number of complex          |          |                          |                  |  |
|----------------------------|----------|--------------------------|------------------|--|
| Number of samples          |          | Uncensored values        | 0.40             |  |
| Uncensored                 | 64       | Mean                     | 0.46             |  |
| Censored                   |          | Lognormal mean           | 0.42             |  |
| Detection limit or PQL     |          | Std. devn.               | 0.728632594      |  |
| Method detection limit     |          | Median                   | 0.215            |  |
| TOTAL                      | 64       | Min.                     | 0.1              |  |
|                            |          | Max.                     | 5.3              |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
| Lognormal distribution?    |          | Normal distribution?     |                  |  |
| r-squared is:              | 0.836    | r-squared is:            | 0.473            |  |
| Recommendations:           |          | •                        |                  |  |
|                            |          |                          |                  |  |
| Reject BOTH lognormal a    | nd norm: | al distributions See Sta | tistics Guidance |  |
| rtojoot Borrriogrionnara   |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
| UCL (based on t-statistic) | is 0.610 | 571431574631             |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |
|                            |          |                          |                  |  |

#### Chloroform

| Number of samples                               |       | Uncensored values    |            |  |  |  |  |
|-------------------------------------------------|-------|----------------------|------------|--|--|--|--|
| Uncensored                                      | 64    | Mean                 | 0.84       |  |  |  |  |
| Censored                                        | 0.    | l ognormal mean      | 0.97       |  |  |  |  |
| Detection limit or PQI                          |       | Std. devn.           | 0.59128047 |  |  |  |  |
| Method detection limit                          |       | Median               | 0.795      |  |  |  |  |
| TOTAL                                           | 64    | Min.                 | 0.1        |  |  |  |  |
|                                                 |       | Max.                 | 2.6        |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
| Lognormal distribution?                         |       | Normal distribution? |            |  |  |  |  |
| r-squared is:                                   | 0 849 | r-squared is:        | 0 923      |  |  |  |  |
| Recommendations:                                | 0.010 | r oquarou io.        | 0.020      |  |  |  |  |
| Lise normal distribution                        |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
| UCL (based on t-statistic) is 0.968143167516383 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |
|                                                 |       |                      |            |  |  |  |  |

## Appendix J Opinion of Probable

Opinion of Probable Costs for Alternatives

### Opinion of Probable Cost for Alternative 1 Monitored Natural Attenuation, Land Use Controls and Permeable Soil Cap Improvements

|                                                                      | <b>a</b>                     |           |               |              |         | O&M Cost                   |                                             |
|----------------------------------------------------------------------|------------------------------|-----------|---------------|--------------|---------|----------------------------|---------------------------------------------|
| item                                                                 | Quantity                     | Units     | Unit Cost     | Capital Cost | Annual  | Present Worth <sup>2</sup> | Source                                      |
| Land Use Engineering Control Construction                            |                              |           |               |              |         |                            |                                             |
| Soil Cover Repair                                                    | 1.8                          | Acre      | \$30,000      | \$54,000     |         |                            | Similar Project                             |
| Plantings                                                            | 1.8                          | Acre      | \$1,500       | \$2,700      |         |                            | Similar Project;                            |
| Mobilization                                                         | 8%                           | LS        | \$56,700      | \$4,536      |         |                            | Similar Project; Percentage of Capital Cost |
| Irrigation Well #4 Decommissioning                                   |                              |           |               |              |         |                            |                                             |
| Well Decommissioing                                                  | 1                            | LS        | \$134,475     | \$134,475    |         |                            | Driller's Estimate                          |
| Monitoring Well Decommissioning                                      |                              |           |               |              |         |                            |                                             |
| Well Decommissioing                                                  | 14                           | ea        | \$2,000       | \$28,000     |         |                            | Similar Project                             |
| Subtotal                                                             |                              |           |               | \$223,711    |         |                            |                                             |
| Contingency                                                          | 25%                          | of Capita | I Cost        | \$55,928     |         |                            |                                             |
| Construction/Project Management                                      | 20% of Capital Cost \$44,742 |           |               |              |         |                            |                                             |
| Engineering (PS&E)                                                   | 15%                          | of Capita | I Cost        | \$33,557     |         |                            |                                             |
| Construction Cost Subtotal                                           |                              |           |               | \$357,938    |         |                            |                                             |
| Sales Tax                                                            |                              |           | 8.7%          | \$31,141     |         |                            |                                             |
| Environmental Oversight                                              |                              |           |               |              |         |                            |                                             |
| General Reporting                                                    |                              |           |               |              |         |                            |                                             |
| Draft Groundwater Monitoring and Well Maintenance Plan               | 0                            | Each      | \$14,000      | \$0          |         |                            | Engineer's Estimate                         |
| Final Groundwater Monitoring and Well Maintenance Plan               | 0                            | Each      | \$6,500       | \$0          |         |                            | Engineer's Estimate                         |
| Annual Groundwater Monitoring Reports                                | 0                            | Each      | \$10,700      |              | #DIV/0! | \$0                        | Engineer's Estimate                         |
| Periodic Review Report (every 5 years)                               | 0                            | Each      | \$27,700      |              | #DIV/0! | \$0                        | Engineer's Estimate                         |
| Project Management                                                   | 0                            | LS        | \$5,890       | \$0          |         |                            | Engineer's Estimate                         |
| Land Use Controls                                                    |                              |           |               |              |         |                            |                                             |
| Environmental Covenant                                               | 1                            | LS        | \$6,000       | \$6,000      | \$500   | \$7,143                    | Engineer's Estimate                         |
| Draft Land Use Control Implementation Plan (LUCIP)                   | 1                            | LS        | \$5,000       | \$5,000      |         |                            | Engineer's Estimate                         |
| Final LUCIP                                                          | 1                            | LS        | \$2,200       | \$2,200      | \$500   | \$7,143                    | Engineer's Estimate                         |
| Notice of Conveyance or Other Transfer of an Interst in the Property | 1                            | LS        | \$2,000       |              |         | \$2,136                    | Engineer's Estimate                         |
| Fencing and Signage                                                  | 1                            | LS        |               |              |         |                            |                                             |
| Land Use Control Maintenance                                         | 1                            | LS        | \$1,000       |              | \$1,000 | \$14,286                   | Engineer's Estimate                         |
| Short Term Groundwater Monitoring (yr 1)                             |                              |           |               |              |         |                            |                                             |
| Sample Collection (Quarterly)                                        | 0                            | ea        | \$8,564       | \$0          |         |                            | Engineer's Estimate                         |
| Sample Analysis (Quarterly)                                          | 0                            | ea        | \$3,811       | \$0          |         |                            | Engineer's Estimate                         |
| Long Term Groundwater Monitoring (yrs 2-5)                           |                              |           |               |              |         |                            |                                             |
| Sample Collection (Semiannual)                                       | 0                            | ea        | \$8,564       |              | #DIV/0! |                            | Engineer's Estimate                         |
| Sample Analysis (Semiannual)                                         | 0                            | ea        | \$3,811       |              |         |                            | Engineer's Estimate                         |
| Environmental Oversight Subtotal                                     |                              |           |               | \$13,200     |         |                            |                                             |
| Operation and Maintenance Subtotal                                   |                              |           |               |              |         | \$30,707                   |                                             |
| O&M Project Management and Support                                   | 10%                          | of O&M F  | Present Worth |              |         | \$3,070.74                 |                                             |
| O&M Contingency                                                      | 25%                          | of O&M F  | Present Worth |              |         | \$7,676.85                 |                                             |
| Operation and Maintenance Total                                      |                              |           |               |              |         | \$41,455                   |                                             |
| NET PRESENT WORTH                                                    |                              |           |               |              |         | \$443,733                  |                                             |

Notes: 1 - Annual land use controls' costs occur each year in perpetuity. 2 - Discount rate used for all present worth calculations per EPA Guidance =

7%

### Opinion of Probable Cost for Alternative 2 Low Permeability Soil Cap with Monitored Natural Attenuation and Land Use Controls

|                                                                      | <b>a</b> |           |               |              | 1            | O&M Cost                   | -                                           |
|----------------------------------------------------------------------|----------|-----------|---------------|--------------|--------------|----------------------------|---------------------------------------------|
| Item                                                                 | Quantity | Units     | Unit Cost     | Capital Cost | Annual       | Present Worth <sup>2</sup> | Source                                      |
| Low Permeability Caps                                                |          |           |               |              |              |                            |                                             |
| WSP Landfill                                                         |          |           |               |              |              |                            |                                             |
| Low Permeability Cap                                                 | 7.7      | Acre      | \$84,000      | \$646,800    |              |                            | Similar Projects                            |
| Mobilization                                                         | 8%       | LS        | \$646,800     | \$51,744     |              |                            | Similar Project; Percentage of Capital Cost |
| Asphalt Caps                                                         |          |           |               |              |              |                            |                                             |
| Soil Excavation, Haul, and Disposal                                  | 1,145    | CY        | \$12.00       | \$13,740     |              |                            | R.S. Means 2011; Similar Projects           |
| Subgrade Preparation and Grading                                     | 6,871    | SY        | \$1.25        | \$8,589      |              |                            | R.S. Means 2011; Similar Projects           |
| 6" Base Course (Material, Haul, Placement, Compaction)               | 1,145    | CY        | \$34.63       | \$39,651     |              |                            | R.S. Means 2011; Similar Projects           |
| 2.5" Asphalt Cap (Material, Haul, Placement, Compaction)             | 6,871    | SY        | \$16.50       | \$113,372    |              |                            | R.S. Means 2011; Similar Projects           |
| MODILIZATION                                                         | 8%       | LS        | \$175,352     | \$14,028     |              |                            | Similar Project; Percentage of Capital Cost |
| Irrigation Well #4 Decommissioning                                   |          |           |               |              |              |                            |                                             |
| Well Decommissiong                                                   | 1        | LS        | \$134,475     | \$134,475    |              |                            | Driller's Estimate                          |
|                                                                      |          |           |               |              |              |                            |                                             |
| Monitoring Well Decommissioning                                      |          |           |               |              |              |                            |                                             |
| Well Decommissioing                                                  | 14       | ea        | \$2,000       | \$28,000     |              |                            | Similar Project                             |
| Subtotol                                                             |          |           |               | \$1.0E0.200  |              |                            |                                             |
| Contingency                                                          | 25%      | of Capita | Cost          | \$262 599 68 |              |                            |                                             |
| Construction/Project Management                                      | 20%      | of Capita | Cost          | \$210.079.75 |              |                            |                                             |
| Engineering (PS&E)                                                   | 15%      | of Capita | Cost          | \$157.559.81 |              |                            |                                             |
| Construction Cost Subtotal                                           |          |           |               | \$1,680,638  |              |                            |                                             |
|                                                                      |          |           |               |              |              |                            |                                             |
| Sales Tax                                                            |          |           | 8.7%          | \$146,216    |              |                            |                                             |
| Environmental Oversight                                              |          |           |               |              |              |                            |                                             |
| General Reporting                                                    |          |           |               |              |              |                            |                                             |
| Draft Groundwater Monitoring and Well Maintenance Plan               | 0        | Each      | \$14,000      | \$0          |              |                            | Engineer's Estimate                         |
| Final Groundwater Monitoring and Well Maintenance Plan               | 0        | Each      | \$6,500       | \$0          |              |                            | Engineer's Estimate                         |
| Annual Groundwater Monitoring Reports                                | 0        | Each      | \$10,700      |              | #DIV/0!      |                            | Engineer's Estimate                         |
| Periodic Review Report (every 5 years)                               | 0        | Each      | \$27,700      |              | #DIV/0!      |                            | Engineer's Estimate                         |
| Project Management                                                   | 0        | LS        | \$5,890       | \$0          |              |                            | Engineer's Estimate                         |
| Land Lies Controls                                                   |          |           |               |              |              |                            |                                             |
| Environmental Covenant                                               | 1        | 15        | \$6,000       | \$6,000      | \$500        | \$7 143                    | Engineer's Estimate                         |
| Draft Land Use Control Implementation Plan (LUCIP)                   | 1        | IS        | \$5,000       | \$5,000      | <b>\$500</b> | ψ1,140                     | Engineer's Estimate                         |
| Final LLICIP                                                         | 1        | LS        | \$2,000       | \$2,000      | \$500        | \$7 143                    | Engineer's Estimate                         |
| Notice of Conveyance or Other Transfer of an Interst in the Property | 1        | IS        | \$2,000       | ψ2,200       | <b>\$500</b> | \$2 136                    | Engineer's Estimate                         |
| Land Lise Control Maintenance                                        | 1        | IS        | \$2,000       |              | \$2,000      | \$28 571                   | Engineer's Estimate                         |
|                                                                      |          | 20        | φ2,000        |              | φ2,000       | φ20,071                    | Engineers Estimate                          |
| Short Term Groundwater Monitoring (yr 1)                             |          |           |               |              |              |                            |                                             |
| Sample Collection (Quarterly)                                        | 0        | ea        | \$8,564       | \$0          |              |                            | Engineer's Estimate                         |
| Sample Analysis (Quarterly)                                          | 0        | ea        | \$3,811       | \$0          |              |                            | Engineer's Estimate                         |
| Long Torm Croundwater Monitoring (urg 2.5)                           |          |           |               |              |              |                            |                                             |
| Sample Collection (Semiannual)                                       | 0        | 02        | \$8 564       |              |              |                            | Engineer's Estimate                         |
| Sample Collection (Semiannual)                                       | 0        | ea        | \$3,504       |              | #DIV/0!      | \$0                        | Engineer's Estimate                         |
| Cample Analysis (Comannual)                                          | 0        | cu        | φ0,011        |              |              |                            | Engineers Estimate                          |
| Environmental Oversight Subtotal                                     |          |           |               | \$13,200     |              |                            |                                             |
| Operation and Maintenance Subtotal                                   |          |           |               |              |              | \$44,993                   |                                             |
|                                                                      |          |           |               |              |              |                            |                                             |
| O&M Project Management and Support                                   | 10%      | of O&M F  | Present Worth |              |              | \$4,499.31                 |                                             |
|                                                                      | 25%      |           | resent worth  |              |              | \$11,248.28                |                                             |
| Operation and Maintenance Total                                      |          |           |               |              |              | \$60,741                   |                                             |
|                                                                      |          |           |               |              |              | \$1 900 794                |                                             |
|                                                                      |          |           |               |              |              | \$1,000,704                |                                             |

Notes: 1 - Annual land use controls' costs occur each year in perpetuity. 2 - Discount rate used for all present worth calculations per EPA Guidance =

7%