Cardno ERI
Shaping the Future

Cardno ERI
License ENVIRRI044JD

815 Industry Drive
Tukwila, WA 98188
USA

Phone 206 575 6220
Toll-free 877 470 4334
Fax 206 575 6423
www.cardno.com

www.cardnoeri.com

August 21, 2012
Cardno ERI 31227.02L.LR08

LUST Coordinator
Washington State Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, Washington 99205-1295

SUBJECT **Well Install Report**
Grant County Airport
Former Fueling Facilities
7810 Andrews Street Northeast
Moses Lake, Washington

LUST Coordinator:

At the request of ExxonMobil Environmental Services (EMES), on behalf of Exxon Mobil Corporation, Cardno ERI has prepared the enclosed *Well Install Report*, dated August 21, 2012, presenting results of drilling, well installation, and sampling activities conducted in April and May 2012 at the subject site.

Please contact Mr. Benjamin T. Kortlever, Cardno ERI Project Manager for this site, at 206 575 7558, or Ms. Jennifer Sedlachek, EMES Project Manager for this site, at 510 547 8196, with any questions.

Sincerely,

Shingo Yamazaki
Staff Engineer
for Cardno ERI
Direct Line 206 394 7227
Email: shingo.yamazaki@cardno.com

Benjamin T. Kortlever, L.G. 2937
Project Manager
for Cardno ERI
Direct Line 206 575 7558
Email: benjamin.kortlever@cardno.com

ENCLOSURE

Cardno ERI's *Well Install Report*, dated August 21, 2012

cc: w/ enclosure
Mr. Larry Godden, Air America Fuel and Service, Inc. *(electronic copy)*
Mr. Craig L. Baldwin, Grant County International Airport *(electronic copy)*
Ms. Jennifer Sedlachek, ExxonMobil Environmental Services *(electronic copy)*

Cardno ERI

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Well Install Report

Grant County Airport

Former Fueling Facilities

7810 Andrews Street Northeast

Moses Lake, Washington

Job Number 31227

Prepared for ExxonMobil Environmental Services

August 21, 2012

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Ms. Jennifer Sedlachek
ExxonMobil Environmental Services
4096 Piedmont Avenue #194
Oakland, California 94611

SUBJECT **Well Install Report**
Grant County Airport
Former Fueling Facilities
7810 Andrews Street Northeast
Moses Lake, Washington

Ms. Sedlachek:

At the request of ExxonMobil Environmental Services (EMES), on behalf of ExxonMobil Oil Corporation (ExxonMobil), Cardno ERI prepared this report presenting the results of drilling, well installation, and soil sampling activities at the subject site. The purpose of the work was to install four groundwater monitoring wells in the vicinity of Pumphouse #1 for delineation of residual hydrocarbons, use in proposed remedial feasibility studies, and NAPL recovery. The scope of work included:

- Advancement of four soil borings to approximately 100 feet bgs;
- Collection of soil samples to assess hydrocarbon concentrations in on-site soil; and,
- Completion of soil borings as groundwater monitoring wells MW23 through MW26.

SITE DESCRIPTION

Grant County Airport is located immediately north of the City of Moses Lake in Grant County, Washington. The site lies at an elevation of approximately 1,170 feet above msl (Plate 1). Former ExxonMobil-leased facilities include fueling hydrants located in the southern portion of the airport, two aboveground storage tanks (ASTs) (Storage Tank #38 and #24, with capacities of 54,390 barrels (bbl) and 27,426 bbl, respectively) located south of the airport, and associated product piping runs, all of which have historically been used to dispense jet fuel. The generalized site plan for Pumphouse #1 is shown on Plate 2.

GEOLOGY AND HYDROGEOLOGY

The site is underlain by basaltic gravel consisting of predominantly basaltic fragments ranging from sand to cobbles. This deposit originated from the scouring of the Yakima Basalt by glacial fluvial streams formed in the Pleistocene. Fine sand, silt and clay beneath the basaltic gravels and sands indicate the lacustrine environment that was deposited above the older Miocene Yakima Basalt of the Columbia River Basalt Group (Grolier and Foxworthy, 1961).

Groundwater occurs within the fractured basalt, some of the fine sands and gravel lenses within the lacustrine deposits, and the basaltic sand and gravel. Monitoring wells at the site have been installed within the basaltic gravel and lacustrine deposits. The basaltic gravel, lacustrine clays and silts extend to approximately 150 ft bgs to the fractured basalt. Groundwater in the region generally flows from the northeast to the southwest, towards the nearest surface water body, Moses Lake, located approximately 1.25 miles southwest (Plate 1; Grolier and Foxworthy, 1961).

PREVIOUS WORK

Environmental investigation and remediation activities have been conducted at the site by various consultants since 1992. Previous assessment and remedial work has included advancement of soil borings, well installation, well destruction, UST decommissioning, and NAPL recovery. Cumulative soil analytical results are summarized in Table 2. Based on a review of current and historical data, JP-4/diesel #1 (Jet A Fuel) has been observed in the water-bearing zone at approximately 90 feet bgs in the vicinity of Pumphouse #1.

Previous consultant data indicates that periodic groundwater monitoring and sampling activities were initiated on January 28, 1993. Periodic NAPL removal has occurred on the site beginning in 1993. Remedial activities have included hand-bailing, passive skimmers, and the installation of NAPL recovery systems. A total of approximately

140 gallons of hydrocarbons had been recovered from the site through 2006 (Hydrometrics, 2006). Groundwater monitoring and sampling activities conducted over the previous four quarters indicate measurable NAPL in 7 of 17 wells installed in the vicinity of Pumphouse #1 ranging from 0.11 to 2.69 feet in thickness (Cardno ERI, 2012).

SUBSURFACE INVESTIGATION

Cardno ERI proposed the installation of four groundwater monitoring wells in the vicinity of well PH1-9301 for delineation of residual hydrocarbons, use in remedial feasibility studies, and NAPL recovery. Cardno ERI performed the fieldwork under the advisement of a professional geologist and in accordance with Cardno ERI's standard field protocol (Appendix A).

Pre-Field Activities

Prior to drilling activities, Cascade Drilling, LP (Cascade) obtained Washington start cards from the Washington State Department of Ecology (Ecology). Cardno ERI notified Underground Service Alert (USA) a minimum of 48 hours prior to the onset of field activities, and contracted Applied Professional Services, a private utility-locating company, to locate underground utilities at the site. In addition, Cardno ERI personnel visited the site to check for obstructions and to mark the proposed boring locations.

Soil Sampling and Well Installation Activities

On April 30 through May 16, 2012, Cardno ERI observed Cascade clear four soil borings (B12 through B15) to depths of 5 to 8 feet bgs using air-knife clearance drilling equipment (Plate 3). Following clearance, borings B12 through B15 were advanced by Cascade, using an air-rotary drill rig, to total depths of 103, 102.5, 101, and 101 feet bgs, respectively. For each sampling interval, soil samples were collected and preserved in accordance with EPA Method 5035 for laboratory analysis. Descriptions of materials encountered during drilling, PID readings, and sampled intervals are provided in Appendix B.

Upon completion of drilling and soil sampling activities, borings B12 through B15 were completed as monitoring wells MW23 through MW26 (Table 1). Groundwater monitoring wells MW24 through MW26 were constructed by installing 4-inch diameter, schedule 40, flush-jointed, PVC casing with 0.020-inch slots, screened from 80 to 100 feet bgs. Groundwater monitoring well MW23 was constructed by installing 4-inch diameter, schedule 40, flush-jointed, PVC casing with 0.010-inch slots, screened from 70 to 100 feet bgs. Blank 4-inch diameter PVC casing was placed from the top of the screens to approximately 3 feet above ground surface; above ground monuments

were set over each wellhead. Bollards were placed around groundwater monitoring well MW26 which is located adjacent to the access road located west of the fence around Pumphouse #1.

Well Development

Following installation, Cardno ERI observed Cascade develop groundwater monitoring wells MW23 through MW26 using a surge block and over-purging with a tower-mounted, mechanical bailing rig.

Laboratory Analyses

Select soil samples were submitted for analysis to TestAmerica Laboratories, Inc. (TestAmerica). The samples were analyzed for TPHg in accordance with NWTPH-Gx, TPHd and TPHmo in accordance with NWTPH-Dx, and BTEX in accordance with EPA Method 8021B. Copies of laboratory analytical reports and COC forms are included in Appendix C.

Waste Management Plan

The soil generated during well installation activities and well development purge water were temporarily stored on-site in DOT-approved, 55-gallon drums. Soil was transported by Clean Harbors Environmental Services, Inc. (Clean Harbors) to Grassy Mountain, Utah Facility in Grantsville, Utah for final disposal. Purge water from well development was treated and discharged on site. Waste documentation for soil is included in Appendix D.

RESULTS OF INVESTIGATION

Laboratory results indicate 7 of the 12 soil samples collected during boring advancement activities do not contain residual hydrocarbon concentrations exceeding the MTCA Method A Cleanup Levels (Table 2, Plate 3).

RECOMMENDATIONS

Cardno ERI recommends the installation of a NAPL recovery system to remove free-phase hydrocarbons from monitoring wells where NAPL has been historically observed.

LIMITATIONS

For any reports cited that were not generated by Cardno ERI, the data taken from those reports is used "as is" and is assumed to be accurate. Cardno ERI does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these reports.

This document was prepared under the guidance of a licensed geologist and in accordance with generally accepted standards of environmental, geological and engineering practices in Washington at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Cardno ERI appreciates the opportunity to provide assistance on this project. Please contact Benjamin T. Kortlever, Cardno ERI's project manager for the site, at 206 575 7558, if you have any questions.

Sincerely,

ON BEHALF of

Shingo Yamazaki
Staff Engineer
for Cardno ERI
Direct Line 206 394 7227
Email: shingo.yamazaki@cardno.com

Benjamin T. Kortlever, L.G. 2937
Project Manager
for Cardno ERI
Direct Line 206 575 7558
Email: benjamin.kortlever@cardno.com

ENCLOSURES

References
Acronym List

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Plate 3	Soil Sample Analysis Map (Pumphouse #1) – 05/03 – 05/11/12
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Table 2	Cumulative Soil Analytical Results
Appendix A	Field Protocol
Appendix B	Unified Soil Classification System Key and Boring Logs
Appendix C	Laboratory Analytical Reports and Chain of Custody Documentation
Appendix D	Waste Documentation

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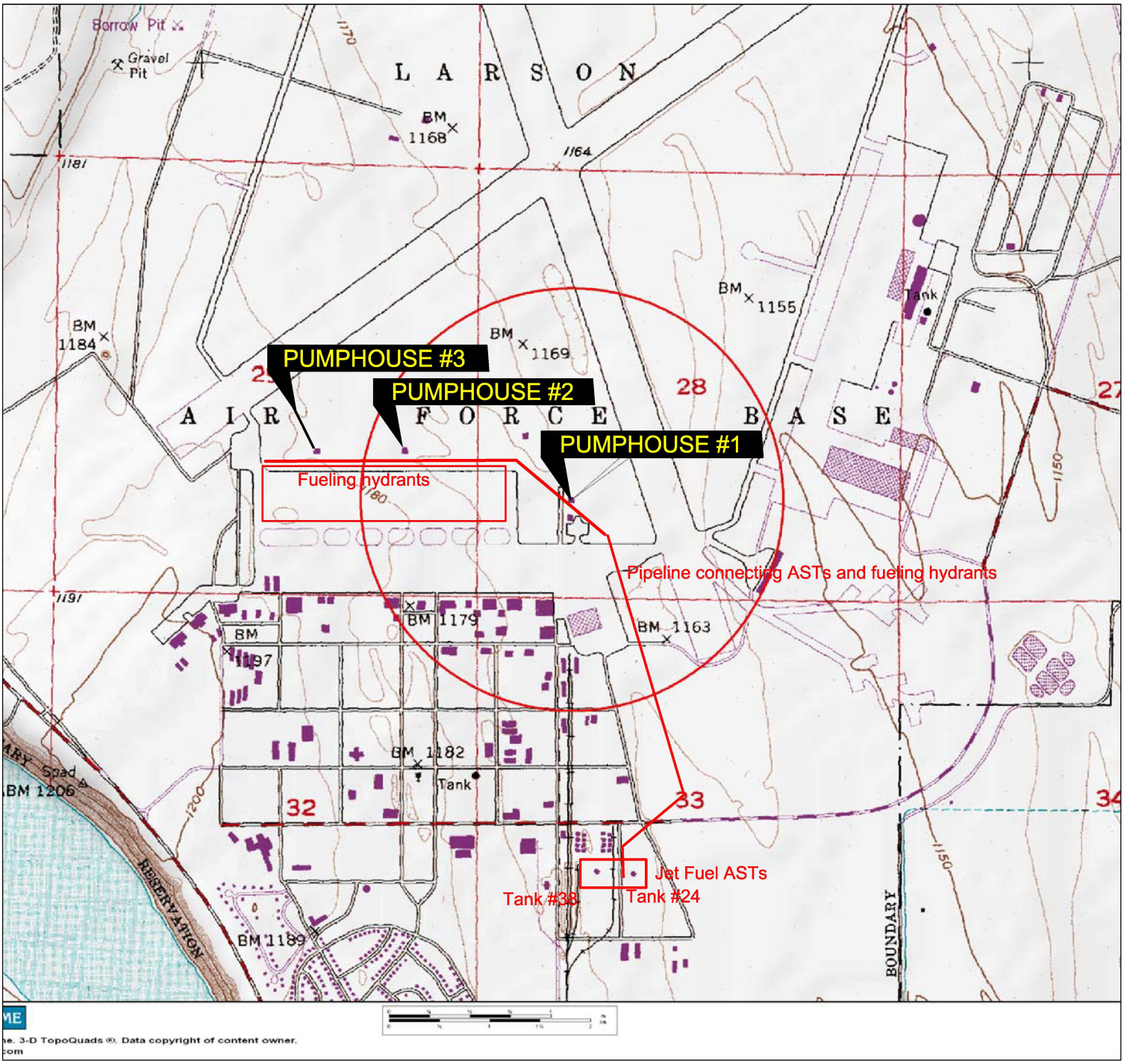
ACRONYM LIST

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon



FN 312270001

EXPLANATION

◯ 1/2-mile Radius Circle From Pumphouse #1

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map
provided by
DeLorme 3-D TopoQuads

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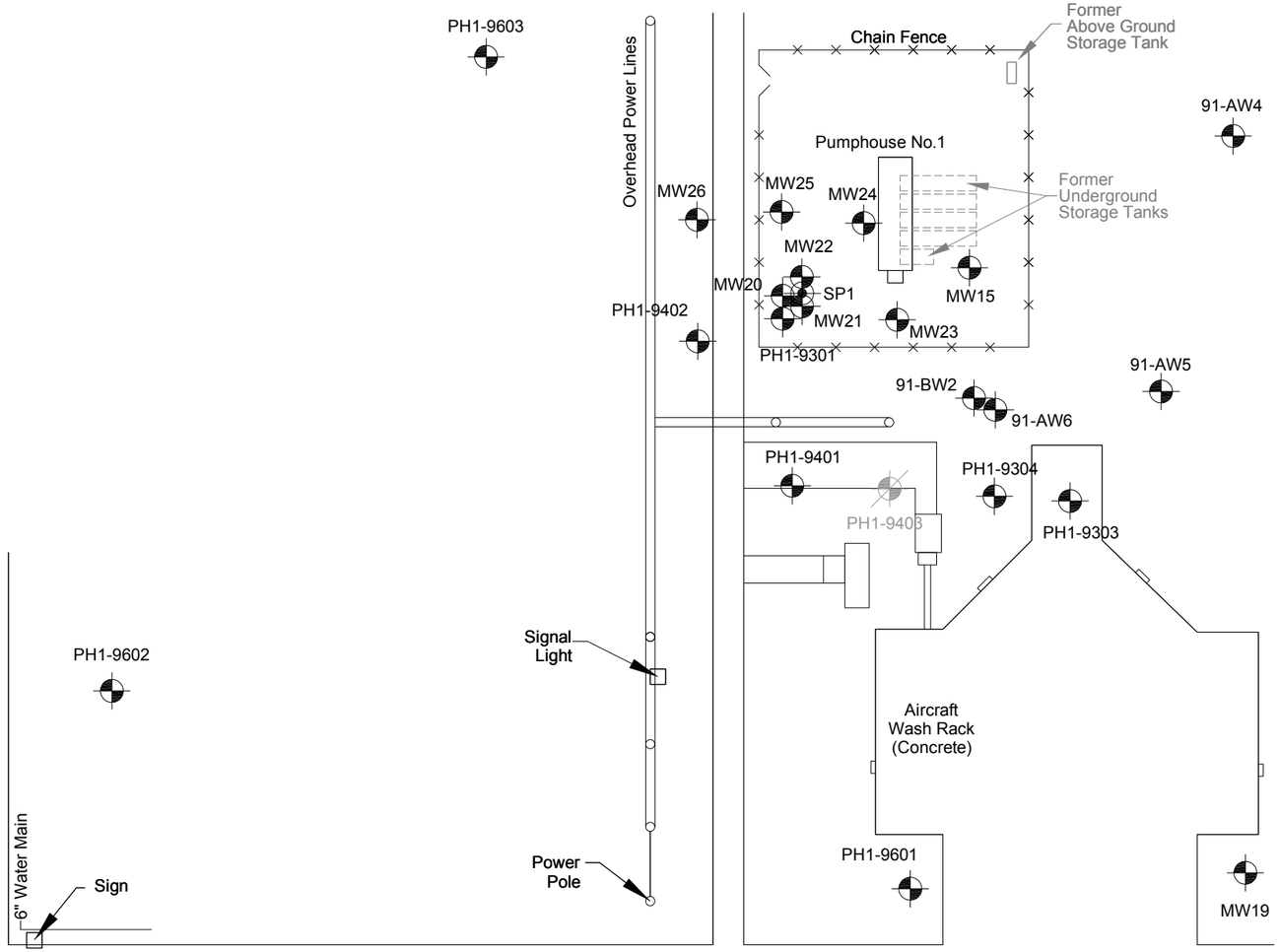
SITE LOCATION MAP

GRANT COUNTY AIRPORT
FORMER FUELING FACILITIES
7810 Andrews Street Northeast
Moses Lake, Washington

PROJECT NO.
31227

PLATE
1
NAG: 01/12/12



APPROXIMATE SCALE

0 100 200 Feet

SOURCE:
Modified from a map provided by
Secor International Inc.

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GENERALIZED SITE PLAN
(PUMPHOUSE #1)

GRANT COUNTY AIRPORT
FORMER FUELING FACILITIES
7810 Andrews Street Northeast
Moses Lake, Washington

EXPLANATION

PH1-9603 Groundwater Monitoring Well

PH1-9403 Destroyed Groundwater Monitoring Well

PROJECT NO.
31227

PLATE
2

SY: 05/29/12

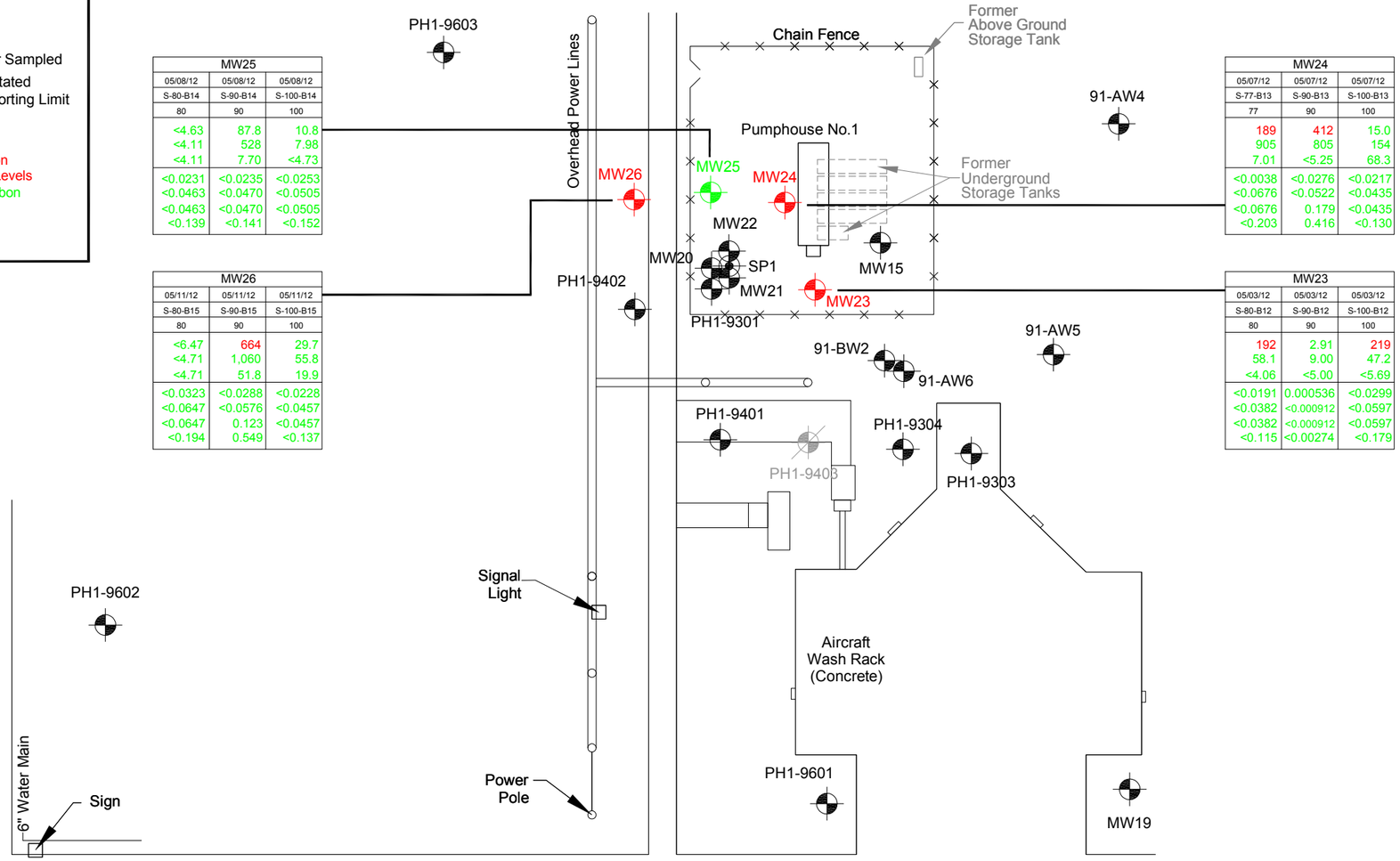
Laboratory Results In µg/L

MW26	Well ID
05/11/12	Sample Date
S-90-B15	Sample Name
90	Sample Depth
664	Total Petroleum Hydrocarbons as Gasoline
1,060	Total Petroleum Hydrocarbons as Diesel
51.8	Total Petroleum Hydrocarbons as Oil
<0.0288	Benzene
<0.0576	Toluene
0.123	Ethylbenzene
0.549	Total Xylenes

-- = Not Analyzed or Sampled

<1.00 = Less than the Stated Laboratory Reporting Limit

- Numbers or Symbols in Red Indicate Residual Hydrocarbon Concentrations Which Exceed MTCA Method A Cleanup Levels
- Numbers or Symbols in Green Indicate Residual Hydrocarbon Concentrations Below MTCA Method A Cleanup Levels
- No Data Available for Numbers and Symbols in Black



MW25		
05/08/12	05/08/12	05/08/12
S-80-B14	S-90-B14	S-100-B14
80	90	100
<4.63	87.8	10.8
<4.11	528	7.98
<4.11	7.70	<4.73
<0.0231	<0.0235	<0.0253
<0.0463	<0.0470	<0.0505
<0.0463	<0.0470	<0.0505
<0.139	<0.141	<0.152

MW26		
05/11/12	05/11/12	05/11/12
S-80-B15	S-90-B15	S-100-B15
80	90	100
<6.47	664	29.7
<4.71	1,060	55.8
<4.71	51.8	19.9
<0.0323	<0.0288	<0.0228
<0.0647	<0.0576	<0.0457
<0.0647	0.123	<0.0457
<0.194	0.549	<0.137

MW24		
05/07/12	05/07/12	05/07/12
S-77-B13	S-90-B13	S-100-B13
77	90	100
189	412	15.0
905	805	154
7.01	<5.25	68.3
<0.0038	<0.0276	<0.0217
<0.0676	<0.0522	<0.0435
<0.0676	0.179	<0.0435
<0.203	0.416	<0.130

MW23		
05/03/12	05/03/12	05/03/12
S-80-B12	S-90-B12	S-100-B12
80	90	100
192	2.91	219
58.1	9.00	47.2
<4.06	<5.00	<5.69
<0.0191	0.000536	<0.0299
<0.0382	<0.000912	<0.0597
<0.0382	<0.000912	<0.0597
<0.115	<0.00274	<0.179

APPROXIMATE SCALE

0 100 200 Feet

SOURCE:
Modified from a map provided by Secor International Inc.

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SOIL SAMPLE ANALYSIS MAP (PUMPHOUSE #1) - 05/03 - 05/11/12

GRANT COUNTY AIRPORT
FORMER FUELING FACILITIES
7810 Andrews Street Northeast
Moses Lake, Washington

EXPLANATION

PH1-9603 Groundwater Monitoring Well

PH1-9403 Destroyed Groundwater Monitoring Well

PROJECT NO. 31227

PLATE 3

SY: 05/29/12

TABLE 1
GROUNDWATER MONITORING AND SAMPLING SCHEDULE AND WELL CONSTRUCTION DETAILS
Grant County Airport
7810 Andrews Street Northeast
Moses Lake, Washington

Well ID	Well Activity	Frequency of Gauging	Frequency of Sampling	Date of Installation	Wellhead Elevation (feet)	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Casing/Borehole Diameter (inches)	Slot Size (inches)
91-AW4	NS	NM	NS	September 9, 1991	1,169.47	79-99	99	2/9	0.015
91-AW5	NS	NM	NS	September 10, 1991	1,170.25	79-99	99	2/9	0.015
91-AW6	NS	NM	NS	September 10, 1991	1,170.38	78-98	98	2/9	0.015
91-BW2	NS	NM	NS	August 26, 1991	NE	137-147	147	2/9	0.015
PH1-9301	NS	NM	NS	--	1,167.07	--	--	--/--	0.020
PH1-9303	NS	NM	NS	--	1,163.62	--	99	--/--	0.020
PH1-9304	NS	NM	NS	--	1,166.44	--	99	--/--	0.020
PH1-9401	NS	NM	NS	--	1,163.77	--	95	--/--	0.020
PH1-9402	NS	NM	NS	April 16, 1994	1,167.09	75.5-95.5	95.5	2/6	0.020
PH1-9601	NS	NM	NS	August 8, 1996	1,165.44	75-95	95	2/--	0.020
PH1-9602	NS	NM	NS	August 7, 1996	1,167.66	77-97	97	2/--	0.020
PH1-9603	NS	NM	NS	August 6, 1996	1,170.29	80-100	100	2/--	0.020
MW15	NS	NM	NS	May 2, 2008	1,164.08	88.5-108.5	108.5	2/6.25	0.010
MW19	NS	NM	NS	April 20, 2011	NE	70-100	100	4/10	0.020
MW20	NS	NM	NS	April 26, 2011	NE	80-100	100	4/10	0.020
MW21	NS	NM	NS	April 27, 2011	NE	80-100	100	4/10	0.020
MW22	NS	NM	NS	April 29, 2011	NE	80-100	100	4/10	0.020
MW23	NS	NM	NS	May 3, 2012	NE	70-100	100	4/10	0.010
MW24	NS	NM	NS	May 7, 2012	NE	80-100	100	4/10	0.020
MW25	NS	NM	NS	May 9, 2012	NE	80-100	100	4/10	0.020
MW26	NS	NM	NS	May 11, 2012	NE	80-100	100	4/10	0.020
SP1	NS	NM	NS	April 28, 2011	NE	90-95/105-108a	108	2/7	0.030/0.020a

EXPLANATION:

feet bgs = feet below ground surface

P = Purge

-- = Not Available

G = Gauged Only

a = SP1 is screened from 90 to 95 feet with 0.030-inch slot size, and from 105 to 108 feet with a 0.020-inch slot size sparge point

NE = Not Established

NM = Not Measured

NS = Not Sampled

NAPL = Non-aqueous Phase Liquid

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS
Grant County Airport
Former Fueling Facilities
7810 Andrews Street Northeast
Moses Lake, Washington

Sample Name	Well ID	Sample Date	Sample Depth (ft bgs)	TPH as Jet A Fuel (mg/kg)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Lead (mg/kg)	TOC (mg/kg)	Total Heterotroph Mean Value (CFU/g)	Total Heterotroph Standard deviation (CFU/g)	Diesel Degraders Mean Value (CFU/g)	Diesel Degraders Standard deviation (CFU/g)
Science & Engineering Analysis Corporation (SEACOR) - Site Assessment Report for 23 Underground Storage Tanks at Grant County Municipal Airport - November 12, 1992:																	
Pit 1 13'	NA	09/25/92	13.0	**2,000**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B1-3	NA	09/26/92	13.5-15.0	**4,600**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B1-6	NA	09/26/92	28.5-30.0	**1,600**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B2-4	NA	09/26/92	18.5-20.0	**5,800**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B2-5	NA	09/26/92	23.5-25.0	**4,700**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B3-3	NA	09/26/92	12.0-13.5	**4,800**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B4-2	NA	09/27/92	8.5-10.0	**6,900**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B4-3	NA	09/27/92	11.0-12.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B5-2	NA	09/27/92	8.5-10.0	**4,100**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B5-3	NA	09/27/92	11.0-12.0	**1,100**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B6-2	NA	09/27/92	8.5-10.0	**3,900**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B6-3	NA	09/27/92	11.0-12.0	**3,400**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B7-3	NA	09/27/92	13.5-15.0	41	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B8-2	NA	09/27/92	9.5-11.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B9-2	NA	09/27/92	9.5-11.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B10-2	NA	09/27/92	9.5-11.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B11-3	NA	09/27/92	13.5-15.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B12-3	NA	09/27/92	13.5-15.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B13-4	NA	09/27/92	18.5-20.0	**4,200**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B13-5	NA	09/27/92	23.5-25.0	**8,100**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B14-3	NA	09/27/92	13.5-15.0	**8,600**	--	--	--	--	--	--	--	--	--	--	--	--	--
PH1-B14-4	NA	09/27/92	18.5-20.0	**7,500**	--	--	--	--	--	--	--	--	--	--	--	--	--
Secor International, Inc. (SECOR) - Site Assessment Focused Feasibility Study and Fate and Transport Modeling Report - August 18, 1997:																	
PH1-9601	NA	08/08/96	82	<10.0	--	--	--	--	--	--	--	--	84.5	73,700	±10,600	40,700	±3,060
PH1-9602	NA	08/07/96	85	<10.0	--	--	--	--	--	--	--	--	<50.0	105,000	±5,690	58,400	±50,700
PH1-9603	NA	08/06/96	87	<10.0	--	--	--	--	--	--	--	--	<50.0	157,000	± 31,000	60,300	± 24,900
Environmental Resolutions, Inc. (ERI) - Monitoring Well Installation and Groundwater Monitoring Report - July 3, 2008:																	
S-6-B1	MW13	04/28/08	6	--	<5.92	<3.94	18.0	<0.0296	<0.0592	<0.0592	<0.178	3.21	--	--	--	--	--
S-94-B1	MW13	04/29/08	94	--	<6.61	<4.09	15.5	<0.0330	<0.0661	<0.0661	<0.198	--	--	--	--	--	--
S-101-B1	MW13	04/29/08	101	--	<5.67	<4.07	10.4	<0.0284	<0.0567	<0.0567	<0.170	--	--	--	--	--	--
S-110-B1	MW13	04/29/08	110	--	<4.77	<4.38	<4.38	<0.0239	<0.0477	<0.0477	<0.143	--	--	--	--	--	--
S-10-B2	MW14	05/01/08	10	--	<5.39	<3.99	<3.99	<0.0269	<0.0539	<0.0539	<0.162	2.54	--	--	--	--	--
S-100-B2	MW14	05/01/08	100	--	<6.81	4.84	5.60	<0.0340	<0.0681	<0.0681	<0.204	--	--	--	--	--	--
S-108-B2	MW14	05/01/08	108	--	<4.06	<4.41	<4.41	<0.0203	<0.0406	<0.0406	<0.122	--	--	--	--	--	--
S-10-B3	MW15	05/02/08	10	--	<5.04	34.1	35.5	<0.0252	<0.0504	<0.0504	<0.151	4.57	--	--	--	--	--
S-20-B3b	MW15	05/02/08	20	--	<5.64	--	--	<0.0282	<0.0564	<0.0564	<0.169	--	--	--	--	--	--
S-30-B3	MW15	05/02/08	30	--	<5.28	<3.95	6.25	<0.0264	<0.0528	<0.0528	<0.158	--	--	--	--	--	--
S-40-B3	MW15	05/02/08	40	--	<7.27	<5.30	11.7	<0.0363	<0.0727	<0.0727	<0.218	--	--	--	--	--	--
MTCA Method A Cleanup Levels				200	30/100a	2,000	2,000	0.03	7	6	9	250	NA	NA	NA	NA	NA

Continued on Page 2

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS
Grant County Airport
Former Fueling Facilities
7810 Andrews Street Northeast
Moses Lake, Washington

Sample Name	Well ID	Sample Date	Sample Depth (ft bgs)	TPH as Jet A Fuel (mg/kg)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Lead (mg/kg)	TOC (mg/kg)	Total Heterotroph Mean Value (CFU/g)	Total Heterotroph Standard deviation (CFU/g)	Diesel Degraders Mean Value (CFU/g)	Diesel Degraders Standard deviation (CFU/g)
Environmental Resolutions, Inc. (ERI) - Monitoring Well Installation and Groundwater Monitoring Report - July 3, 2008, continued:																	
S-55-B3	MW15	05/02/08	55	--	<6.54	<4.33	7.39	<0.0327	<0.0654	<0.0654	<0.196	--	--	--	--	--	--
S-70-B3	MW15	05/02/08	70	--	<5.13	<4.05	5.25	<0.0256	<0.0513	<0.0513	<0.154	--	--	--	--	--	--
S-81-B3	MW15	05/02/08	81	--	**132**	34.4	<4.06	<0.0325	<0.0651	<0.0651	<0.195	1.88	--	--	--	--	--
S-96-B3	MW15	05/02/08	96	--	<5.93	6.96	6.75	<0.0297	<0.0593	<0.0593	<0.178	--	--	--	--	--	--
S-106-B3	MW15	05/02/08	106	--	<5.61	<4.27	9.60	<0.0281	<0.0561	<0.0561	<0.168	--	--	--	--	--	--
S-6-B4	MW16	05/06/08	6	--	<4.83	5.43	17.5	<0.0241	<0.0483	<0.0483	<0.145	3.20	--	--	--	--	--
S-131-B4	MW16	05/06/08	131	--	<5.22	<4.91	12.3	<0.0261	<0.0522	<0.0522	<0.157	--	--	--	--	--	--
S-7-B5	MW17	05/07/08	7	--	<4.71	7.51	20.6	<0.0235	<0.0471	<0.0471	<0.141	3.02	--	--	--	--	--
S-116-B5	MW17	05/07/08	116	--	<6.87	<4.82	11.5	<0.0344	<0.0687	<0.0687	<0.206	--	--	--	--	--	--
S-130-B5	MW17	05/07/08	130	--	<7.00	<5.82	13.4	<0.0350	<0.0700	<0.0700	<0.210	--	--	--	--	--	--
S-6-B6	MW18	05/08/08	6	--	<4.53	74.2	429	<0.0226	<0.0453	<0.0453	<0.136	3.88	--	--	--	--	--
S-125-B6	MW18	05/09/08	125	--	<5.80	5.63	22.7	<0.0290	<0.0580	<0.0580	<0.174	--	--	--	--	--	--
S-142-B6	MW18	05/09/08	142	--	<5.45	11.4	28.5	<0.0272	<0.0545	<0.0545	<0.163	--	--	--	--	--	--
Cardno ERI - Well Installation, Destruction, and Groundwater Monitoring Report - July 13, 2011:																	
S-80-B7	SP1	04/28/11	80	--	<7.07	7.11	16.1	<0.0316	<0.126	<0.126	<0.316	--	--	--	--	--	--
B-90-B7	SP1	04/28/11	90	--	**184**	437	19.4	<0.0246	<0.0983	<0.0983	<0.246	--	--	--	--	--	--
S-110-B7	SP1	04/28/11	110	--	10.4	17.1	7.44	<0.0197	<0.0788	<0.0788	<0.197	--	--	--	--	--	--
S-7.5-B8	MW19	04/19/11	7.5	--	<4.52	19.9	68.8	<0.00203	<0.00203	<0.00203	<0.00508	4.18	--	--	--	--	--
S-40-B8	MW19	04/19/11	40	--	<7.34	<4.01	<4.01	<0.00173	<0.00173	<0.00173	<0.00433	--	--	--	--	--	--
S-75-B8	MW19	04/19/11	75	--	<6.02	6.46	9.31	<0.00273	<0.00273	<0.00273	<0.00682	--	--	--	--	--	--
S-85-B8	MW19	04/19/11	85	--	<6.41	<4.95	5.86	<0.00227	<0.00227	<0.00227	<0.00568	--	--	--	--	--	--
S-90-B8	MW19	04/19/11	90	--	<5.87	<5.01	5.62	<0.00255	<0.00255	<0.00255	<0.00639	--	--	--	--	--	--
S-120-B8	MW19	04/19/11	120	--	<5.29	<4.31	7.30	<0.00198	<0.00198	<0.00198	<0.00496	--	--	--	--	--	--
S-85-B9	MW20	04/26/11	85	--	**296**	638	6.69	<0.0403	<0.161	<0.161	<0.403	--	--	--	--	--	--
S-90-B9	MW20	04/26/11	90	--	**523**	196	<5.07	<0.0412	<0.165	<0.165	<0.412	--	--	--	--	--	--
S-95-B9	MW20	04/26/11	95	--	37.6	74.8	18.4	<0.0229	<0.0918	<0.0918	<0.229	--	--	--	--	--	--
S-50-B10	MW21	04/22/11	50	--	<6.20	7.20	12.5	<0.00258	<0.00258	<0.00258	<0.00645	--	--	--	--	--	--
S-85-B10	MW21	04/22/11	85	--	37.5	56.1	15.3	<0.00277	<0.00277	<0.00277	0.00697	--	--	--	--	--	--
S-90-B10	MW21	04/22/11	90	--	**114**	376	4.74	<0.00238	<0.00238	<0.00238	<0.00594	--	--	--	--	--	--
S-95-B10	MW21	04/22/11	95	--	**105**	384	14.5	<0.00236	<0.00236	<0.00236	<0.00590	--	--	--	--	--	--
S-100-B10	MW21	04/22/11	100	--	53.2	138	16.3	<0.00215	<0.00215	<0.00215	<0.00537	--	--	--	--	--	--
S-105-B10	MW21	04/22/11	105	--	22.3	76.4	20.9	<0.00191	<0.00191	<0.00191	<0.00477	--	--	--	--	--	--
S-85-B11	MW22	04/29/11	85	--	**121**	270	10.3	<0.0359	<0.144	<0.144	<0.359	--	--	--	--	--	--
S-90-B11	MW22	04/29/11	90	--	**500**	850	5.75	<0.0320	<0.128	<0.128	<0.320	--	--	--	--	--	--
S-110-B11	MW22	04/29/11	110	--	14.1	38.6	13.6	<0.0359	<0.143	<0.143	<0.359	--	--	--	--	--	--
Cardno ERI - Well Install Report - August 21, 2012:																	
S-80-B12	MW23	05/03/12	80	--	**192**	58.1	<4.06	<0.0191	<0.0382	<0.0382	<0.115	--	--	--	--	--	--
S-90-B12	MW23	05/03/12	90	--	2.91	9.00	<5.00	0.000536	<0.000912	<0.000912	<0.00274	--	--	--	--	--	--
S-100-B12	MW23	05/03/12	100	--	**219**	47.2	<5.69	<0.0299	<0.0597	<0.0597	<0.179	--	--	--	--	--	--
MTCA Method A Cleanup Levels				200	30/100a	2,000	2,000	0.03	7	6	9	250	NA	NA	NA	NA	NA

Continued on Page 3

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS
Grant County Airport
Former Fueling Facilities
7810 Andrews Street Northeast
Moses Lake, Washington

Sample Name	Well ID	Sample Date	Sample Depth (ft bgs)	TPH as Jet A Fuel (mg/kg)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Lead (mg/kg)	TOC (mg/kg)	Total Heterotroph Mean Value (CFU/g)	Total Heterotroph Standard deviation (CFU/g)	Diesel Degraders Mean Value (CFU/g)	Diesel Degraders Standard deviation (CFU/g)
Cardno ERI - Well Install Report - August 21, 2012 continued:																	
S-77-B13	MW24	05/07/12	77	--	**189**	905	7.01	<0.0338	<0.0676	<0.0676	<0.203	--	--	--	--	--	--
S-90-B13	MW24	05/07/12	90	--	**412**	805	<5.25	<0.0276	<0.0522	0.179	0.416	--	--	--	--	--	--
S-100-B13	MW24	05/07/12	100	--	15.0	154	68.3	<0.0217	<0.0435	<0.0435	<0.130	--	--	--	--	--	--
S-80-B14	MW25	05/08/12	80	--	<4.63	<4.11	<4.11	<0.0231	<0.0463	<0.0463	<0.139	--	--	--	--	--	--
S-90-B14	MW25	05/08/12	90	--	87.8	528	7.70	<0.0235	<0.0470	<0.0470	<0.141	--	--	--	--	--	--
S-100-B14	MW25	05/08/12	100	--	10.8	7.98	<4.73	<0.0253	<0.0505	<0.0505	<0.152	--	--	--	--	--	--
S-80-B15	MW26	05/11/12	80	--	<6.47	<4.71	<4.71	<0.0323	<0.0647	<0.0647	<0.194	--	--	--	--	--	--
S-90-B15	MW26	05/11/12	90	--	**664**	1,060	51.8	<0.0288	<0.0576	0.123	0.549	--	--	--	--	--	--
S-100-B15	MW26	05/11/12	100	--	29.7	55.8	19.9	<0.0228	<0.0457	<0.0457	<0.137	--	--	--	--	--	--
MTCA Method A Cleanup Levels				200	30/100a	2,000	2,000	0.03	7	6	9	250	NA	NA	NA	NA	NA

EXPLANATION:
mg/kg = milligram per kilogram
ft bgs = feet below ground surface
TPH as Jet A Fuel = Total Petroleum Hydrocarbons in the Jet A Fuel Range (C9-C15) in accordance with EPA Method 8015
TPHg = Total Petroleum Hydrocarbons as Gasoline in accordance with Ecology Method NWTPH-Gx
TPHd, TPHmo = Total Petroleum Hydrocarbons as Diesel and as Motor Oil, respectively, in accordance with Ecology Method NWTPH-Dx
B = Benzene; T = Toluene; E = Ethylbenzene; X = Total Xylenes
BTEX = Aromatic compounds in accordance with EPA Method 8260B
Total Lead in accordance with EPA Method 6010B
TOC = Total Organic Carbon in accordance with EPA Method 9060
Total Heterotroph = Enumeration of total microbial plate count, refer to laboratory reports for description of analytical method. Plate count results represent the mean value and standard deviation of triplicate platings.
Diesel Degraders = Enumeration of diesel degraders, refer to laboratory reports for description of analytical method. Diesel degraders represent cell growth in the presence of diesel as the sole carbon sources.
CFU/g = Colony forming units per gram of soil sample on an as received basis
Shaded values equal or exceed MTCA Method A Cleanup Levels
NA = Not applicable
ND = Non-detect
-- = Not analyzed
< = Less than the stated laboratory reporting limit
a = TPHg soil cleanup level is 30 mg/kg, unless benzene is not detected in the sample, or if toluene, ethylbenzene, and total xylenes constitute < 1% of the TPHg present in the sample. If these conditions are met, the cleanup level for TPHg may be elevated to 100 mg/kg.
b = Sample S-20-B3 results are reported on a wet weight basis

Appendix A

Field Protocol

Cardno ERI
Soil Boring and Well Installation
Field Protocol

Preliminary Activities

Prior to the onset of field activities at the site, Cardno ERI obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. Cardno ERI marks the borehole locations and contacts the local one call utility locating service at least 48 hours prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Prior to drilling, the borehole location is cleared in accordance with the client's procedures. Fieldwork is conducted under the advisement of a registered professional geologist and in accordance with an updated site-specific safety plan prepared for the project, which is available at the job site during field activities.

Drilling and Soil Sampling Procedures

Cardno ERI contracts a licensed driller to advance the boring and collect soil samples. The specific drilling method (e.g., hollow-stem auger, direct push method, or sonic drilling), sampling method [e.g., core barrel or California-modified split spoon sampler (CMSSS)] and sampling depths are documented on the boring log and may be specified in a work plan. Soil samples are typically collected at the capillary fringe and at 5-foot intervals to the total depth of the boring. To determine the depth of the capillary fringe prior to drilling, the static groundwater level is measured with a water level indicator in the closest monitoring well to the boring location, if available.

The borehole is advanced to just above the desired sampling depth. For CMSSSs, the sampler is placed inside the auger and driven to a depth of 18 inches past the bit of the auger. The sampler is driven into the soil with a standard 140-pound hammer repeatedly dropped from a height of 30 inches onto the sampler. The number of blows required to drive the sampler each 6-inch increment is recorded on the boring log. For core samplers (e.g., direct push), the core is driven 18 inches using the rig apparatus.

Soil samples are preserved in the metal or plastic sleeve used with the CMSSS or core sampler, in glass jars or other manner required by the local regulatory agency (e.g., Environmental Protection Agency Method 5035). Sleeves are removed from the sample barrel, and the lowermost sample sleeve is immediately sealed with Teflon™ tape, capped and labeled. Samples are placed in a cooler chilled to 4º Celsius and transported to a state-certified laboratory. The samples are transferred under chain-of-custody (COC) protocol.

Field Screening Procedures

Cardno ERI places the soil from the middle of the sampling interval into a plastic re-sealable bag. The bag is placed away from direct sunlight for approximately 20 minutes, after which the tip of a photo-ionization detector (PID) or similar device is inserted through the plastic bag to measure organic vapor concentrations in the headspace. The PID measurement is recorded on the boring log. At a minimum, the PID or other device is calibrated on a daily basis in accordance with manufacturer's specifications using a hexane or isobutylene standard. The calibration gas and concentration are recorded on a calibration log. Instruments such as the PID are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of petroleum hydrocarbons in the soil matrix with the same precision as laboratory analysis. Cardno ERI trained personnel describe the soil in the bag according to the Unified Soil Classification System and record the description on the boring log, which is included in the final report.

Air Monitoring Procedures

Cardno ERI performs a field evaluation for volatile hydrocarbon concentrations in the breathing zone using a calibrated PID or lower explosive level meter.

Groundwater Sampling

A groundwater sample, if desired, is collected from the boring by using Hydropunch™ sampling technology or installing a well in the borehole. In the case of using Hydropunch™ technology, after collecting the capillary fringe soil sample, the boring is advanced to the top of the soil/groundwater interface and a sampling probe is pushed to approximately 2 feet below the top of the static water level. The probe is opened by partially withdrawing it and thereby exposing the screen. A new or decontaminated bailer is used to collect a water sample from the probe. The water sample is then emptied into laboratory-supplied containers constructed of the correct material and with the correct volume and preservative to comply with the proposed laboratory test. The container is slowly filled with the retrieved water sample until no headspace remains and then promptly sealed with a Teflon-lined cap, checked for the presence of bubbles, labeled, entered onto a COC record and placed in chilled storage at 4° Celsius. Laboratory-supplied trip blanks accompany the water samples as a quality assurance/quality control procedure. Equipment blanks may be collected as required. The samples are kept in chilled storage and transported under COC protocol to a client-approved, state-certified laboratory for analysis.

Backfilling of Soil Boring

If a well is not installed, the boring is backfilled from total depth to approximately 5 feet below ground surface (bgs) with either neat cement or bentonite grout using a tremie pipe. The boring is backfilled from 5 feet bgs to approximately 1 foot bgs with hydrated bentonite chips. The borehole is completed from 1 foot bgs to surface grade with material that best matches existing surface conditions and meets local agency requirements. Site-specific backfilling details are shown on the respective boring log.

Well Construction

A well (if constructed) is completed using materials documented on the boring log or specified in a work plan. The well is constructed with slotted casing across the desired groundwater sampling depth(s) and completed with blank casing to within 6 inches of surface grade. No further construction is conducted on temporary wells. For permanent wells, the annular space of the well is backfilled with Monterey sand from the total depth to approximately 2 feet above the top of the screened casing. A hydrated granular bentonite seal is placed on top of the sand filter pack. Grout may be placed on top of the bentonite seal to the desired depth using a tremie pipe. The well may be completed to surface grade with a 1-foot thick concrete pad. A traffic-rated well vault and locking cap for the well casing may be installed to protect against surface-water infiltration and unauthorized entry. Site-specific well construction details including type of well, well depth, casing diameter, slot size, length of screen interval and sand size are documented on the boring log or specified in the work plan.

Well Development and Sampling

If a permanent groundwater monitoring well is installed, the grout is allowed to cure a minimum of 48 hours before development. Cardno ERI personnel or a contracted driller use a submersible pump or surge block to develop the newly installed well. Prior to development, the pump is decontaminated by allowing it to run and re-circulate while immersed in a non-phosphate solution followed by successive immersions in potable water and de-ionized water baths. The well is developed until sufficient well casing volumes are removed so that turbidity is within allowable limits and pH, conductivity and temperature levels stabilize in the purge water. The volume of groundwater extracted is recorded on a log.

Following development, groundwater within the well is allowed to recharge until at least 80% of the drawdown is recovered. A new or decontaminated bailer is slowly lowered past the air/water interface in the well, and a water sample is collected and checked for the presence of non-aqueous phase liquid, sheen or emulsions. The water sample is then emptied into laboratory-supplied containers as discussed above.

Surveying

If required, wells are surveyed by a licensed land surveyor relative to an established benchmark of known elevation above mean sea level to an accuracy of +/- 0.01 foot. The casing is notched or marked on one side to identify a consistent surveying and measuring point.

Decontamination Procedures

Cardno ERI or the contracted driller decontaminates soil and water sampling equipment between each sampling event with a non-phosphate solution, followed by a minimum of two tap water rinses. De-ionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned prior to drilling the borehole and at completion of the borehole.

Waste Treatment and Soil Disposal

Soil cuttings generated from the drilling or sampling are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. The soil is removed from the site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Decontamination fluids and purge water from well development and sampling activities, if conducted, are stored on site in labeled, regulatory-approved storage containers. Fluids are subsequently transported under manifest to a client- and regulatory-approved facility for disposal or treated with a permitted mobile or fixed-base carbon treatment system.

Appendix B

Unified Soil Classification System Key and Boring Logs

UNIFIED SOIL CLASSIFICATION SYSTEM KEY

MAJOR DIVISIONS		LTR	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel sand mixture, little or no fines
		GM	Silty gravels, gravel-sand-clay mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures

MAJOR DIVISIONS		LTR	DESCRIPTION
FINE GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic silts and very fine-grained sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	SILTS AND CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine-grained sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

BLOW COUNTS REPRESENT THE NUMBER OF BLOWS OF A 140- OR 300-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH EACH 6 INCHES OF PENETRATION.

FN:QuiklogUSCS.dwg

DASHED LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

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UNIFIED SOIL CLASSIFICATION SYSTEM AND LOG OF BORINGS SYMBOL KEY

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BORING LOG B12/MW23

(Page 1 of 3)

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	05/01/12 - 05/03/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	103'
First GW Depth:	87.7'
Well ID:	BHL 174

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	USCS	DESCRIPTION
0				SAND WITH GRAVEL AND COBBLES: fine- to coarse-grained, dark gray, dry, subangular gravel, <3/4" diameter (0/0/60/40).
5	NA	0	SW	
10	NA	0		SAND WITH GRAVEL AND SILT: fine- to coarse grained, gray, dry, subrounded to angular gravel, trace clay (2/10/65/23).
15	NA	0	SW	@ 15': as above.
20	NA	0		SILTY SAND WITH GRAVEL: fine- to coarse- grained, gray, dry, decreasing gravel (2/15/65/18).
25	NA	0		@ 25': as above.
30	NA	0	SM	@ 30': increasing silt (2/20/60/18).
35	NA	0		@35': as above.
40	NA	0		@ 40': as above.

Well: B12 / MW23
Elevation: NE

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BORING LOG B12/MW23

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	for

Date Drilled:	05/01/12 - 05/03/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	103'
First GW Depth:	87.7'
Well ID:	BHL 174

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Well: B12 / MW23
Elevation: NE

Depth (ft)	Blow Count	OVM/PID (ppmv)	USCS	DESCRIPTION
45	NA	0	SM	@ 45': as above.
50	NA	0		@ 50': as above.
55	NA	0		@ 55': as above.
60	NA	0		@ 60': increasing silt (2/28/60/10).
65	NA	0		@ 65': increasing gravel (2/20/60/18).
70	NA	0		@ 70': (2/15/75/8).
75	NA	0	GW	GRAVEL WITH SAND: angular, <3/4" diameter, gray, coarse-grained sand (0/5/30/65).
80	NA	97		@ 80': angular to rounded, fine- to coarse-grained sand, odor (0/5/30/65).

Bentonite Slurry
Bentonite Chips
Sand Pack 20/40
Screen 0.010"
Sand Pack 2/12

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BORING LOG B12/MW23

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

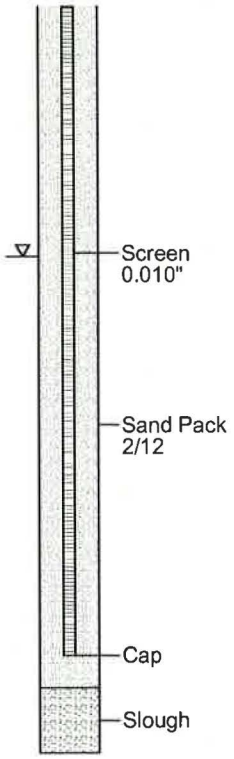
Date Drilled:	05/01/12 - 05/03/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	103'
First GW Depth:	87.7'
Well ID:	BHL 174

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
80					GW	
85	NA	31			SW	SAND WITH GRAVEL AND SILT: fine- to coarse-grained, brown, subangular to angular gravel, odor (0/5/70/25).
90	NA	38			SM	SILTY SAND WITH GRAVEL: coarse- to very coarse-grained, brown, subangular gravel, odor (0/35/40/15).
95	NA	2				@ 95': as above.
100	NA	5				@ 100': little to no odor.
105						Air Knife/Vacuum: 0' to 6.5'; 05/01/12. Air Rotary: 6.5' to 103'; 05/02/12, 05/03/12. Bottom of Borehole @ 103'; 05/03/12. (%Clay / %Silt / %Sand / %Gravel).
110						
115						
120						

Well: B12 / MW23
Elevation: NE



Cardno ERI
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BORING LOG B13/MW24

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	04/30/12; 05/04/12; 05/07/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	102.5'
First GW Depth:	87.9'
Well ID:	BHL 175

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
0						3" asphalt.
5	NA	0			SW	SAND WITH GRAVEL AND COBBLES: fine- to coarse-grained, dark gray, dry, subangular gravel, <3/4" diameter (0/0/60/40).
10	NA	0				@ 10': fine- to very coarse-grained, subrounded to angular gravel, trace silt (0/4/85/11).
15	NA	0			GW	GRAVEL WITH SAND AND COBBLES: 3/4" to 1" diameter, subrounded to angular, gray, fine- to coarse-grained sand, trace silt (0/4/11/85).
20	NA	0			SW	SAND WITH GRAVEL AND COBBLES: fine- to very coarse-grained, dark gray, dry, subrounded to angular gravel, trace silt (0/4/85/11).
25	NA	0				@ 25': as above.
30	NA	0				@ 30': as above.
35	NA	0				@35': increasing very coarse-grained sand (0/4/85/11).
40	NA	0				

Well: B13 / MW24
Elevation: NE

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BORING LOG B13/MW24

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	for

Date Drilled:	04/30/12; 05/04/12; 05/07/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	102.5'
First GW Depth:	87.9'
Well ID:	BHL 175

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Well: B13 / MW24
Elevation: NE

Depth (ft)	Blow Count	OVM/PID (ppmv)	USCS	DESCRIPTION
40			SM	SILTY SAND WITH GRAVEL: fine- to very coarse-grained, gray, dry, trace subangular gravel (0/25/70/5).
45	NA	0	GW	GRAVEL WITH SAND: subrounded to angular, dark gray, dry, fine- to very coarse-grained, trace silt (0/4/11/85).
50	NA	0	SW	SAND WITH GRAVEL: fine- to very coarse-grained, gray, dry, subrounded to angular gravel, trace silt (0/4/90/6).
55	NA	0		@ 55': dark gray (0/4/85/11).
60	NA	0		@ 60': as above.
65	NA	0		@ 65': as above.
70	NA	0		@ 70': as above.
75	NA	0	SW	SAND WITH GRAVEL: fine- to very coarse-grained, dark gray, dry, subrounded to angular gravel (0/0/90/10).
	NA	44	SM	SILTY SAND WITH CLAY: very fine- to fine-grained, brown, dry to damp (5/25/70/0).
80				

Bentonite Slurry
Bentonite Chips
Sand Pack 20/40
Sand Pack 2/12

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Cardno ERI
Shaping the Future

BORING LOG B13/MW24

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	04/30/12; 05/04/12; 05/07/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	102.5'
First GW Depth:	87.9'
Well ID:	BHL 175

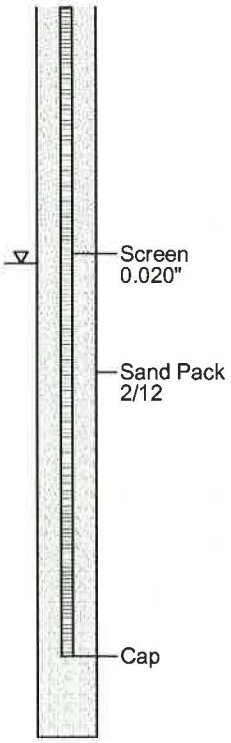
Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
85	NA	163			SM	@ 85': damp to moist, subrounded gravel (6/20/70/4).
90	NA	100				@ 90': damp to wet (6/20/70/4).
95	NA	22				@ 95': as above.
100	NA	3				@ 100': no gravel (5/20/75/0).

Air Knife/Vacuum: 0' to 8'; 04/30/12.
Air Rotary: 8' to 102.5'; 05/04/12, 05/07/12.
Bottom of Borehole @ 102.5'; 05/07/12.
(%Clay / %Silt / %Sand / %Gravel).

Well: B13 / MW24
Elevation: NE



Cardno ERI
Shaping the Future

BORING LOG B14/MW25

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	05/01/12; 05/07/12 - 05/09/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	101'
First GW Depth:	88.2'
Well ID:	BHL 176

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
0						3" asphalt.
5	NA	0				SAND WITH GRAVEL AND COBBLES: fine- to very coarse-grained, dark gray, dry, subangular gravel, <3/4" diameter (0/0/60/40).
10	NA	0				@ 10': medium- to very coarse-grained, dry to damp, subrounded to angular gravel, trace silt (0/4/86/10).
15	NA	0				@ 15': fine- to very coarse-grained (0/4/80/16).
20	NA	0			SW	@ 20': (0/4/86/10).
25	NA	0				@ 25': as above.
30	NA	0				@ 30': no silt (0/0/90/10).
35	NA	0				@35': (0/4/86/10).
40	NA	0				@ 40': light gray (0/4/86/10).

Well: B14 / MW25
Elevation: NE

Cardno ERI
Shaping the Future

BORING LOG B14/MW25

Project No.:	: 31227
Site:	: Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	: Shingo Yamazaki
Reviewed By:	: Benjamin T. Kortlever, L.G. 2937
Signature:	:

Date Drilled:	: 05/01/12; 05/07/12 - 05/09/12
Drilling Co.:	: Cascade Drilling, LP
Clearing Method:	: Vac/Air Knife
Drilling Method:	: Air Rotary
Sampling Method:	: Grab Sample from Cyclone
Borehole Diameter:	: 10"
Casing Diameter:	: 4"
Total Depth:	: 101'
First GW Depth:	: 88.2'
Well ID:	: BHL 176

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
45	NA	0				@ 45': as above.
50	NA	0				@ 50': as above.
55	NA	0				@ 55': as above.
60	NA	0			SW	@ 60': as above.
65	NA	0				@ 65': as above.
70	NA	0				@ 70': as above.
75	NA	0				@ 75': as above.
80	NA	0				@ 80': as above.

Well: B14 / MW25
Elevation: NE

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Cardno ERI
Shaping the Future

BORING LOG B14/MW25

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	05/01/12; 05/07/12 - 05/09/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	101'
First GW Depth:	88.2'
Well ID:	BHL 176

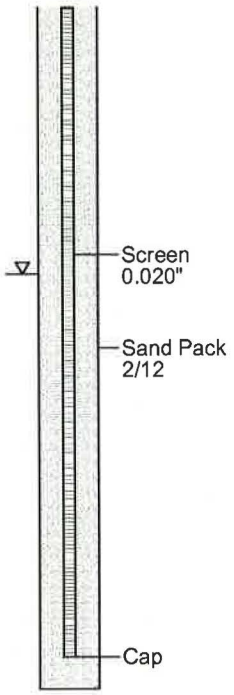
Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
80					SW	
85	NA	15			SM	SILTY SAND WITH GRAVEL: very fine- to fine-grained, brown, silt, subrounded gravel, trace clay, odor (5/20/65/5).
90	NA	30				@ 90': damp to wet.
95	NA	15				@ 95': less odor.
100	NA	1				@ 100': as above.
105						
110						
115						
120						

Air Knife/Vacuum: 0' to 5'; 05/01/12.
Air Rotary: 5' to 101'; 05/07/12 - 05/09/12.
Bottom of Borehole @ 101'; 05/09/12.
(%Clay / %Silt / %Sand / %Gravel).

Well: B14 / MW25
Elevation: NE



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Cardno ERI
Shaping the Future

BORING LOG B15/MW26

Project No.:	: 31227
Site:	: Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	: Shingo Yamazaki
Reviewed By:	: Benjamin T. Kortlever, L.G. 2937
Signature:	:

Date Drilled:	: 05/01/12; 05/10/12; 05/11/12
Drilling Co.:	: Cascade Drilling, LP
Clearing Method:	: Vac/Air Knife
Drilling Method:	: Air Rotary
Sampling Method:	: Grab Sample from Cyclone
Borehole Diameter:	: 10"
Casing Diameter:	: 4"
Total Depth:	: 101'
First GW Depth:	: 87.2'
Well ID:	: BHL 177

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
0						
5	NA	0				SAND WITH GRAVEL AND COBBLES: fine- to coarse-grained, dark gray, dry, subangular gravel, <3/4" diameter (0/0/60/40).
10	NA	0				@ 10': with silt, fine- to very coarse-grained, subrounded to angular gravel (0/10/80/10).
15	NA	0				@ 15': as above.
					SW	
20	NA	0				@ 20': as above.
25	NA	0				@ 25': as above.
30	NA	0				@ 30': as above.
35	NA	0				SILTY SAND WITH GRAVEL: fine- to coarse-grained, dark gray, dry, subrounded to angular gravel,(0/20/70/10).
					SM	
40						

Well: B15 / MW26
Elevation: NE

Cardno ERI
Shaping the Future

BORING LOG B15/MW26

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	05/01/12; 05/10/12; 05/11/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	101'
First GW Depth:	87.2'
Well ID:	BHL 177

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
40	NA	0				@ 40': as above.
45	NA	0				@ 45': as above.
50	NA	0			SM	@ 50': (0/20/75/5).
55	NA	0				@ 55': (0/15/80/5).
60	NA	0				@ 60': dark gray (0/20/75/5).
65	NA	0			SW	SAND WITH GRAVEL AND SILT: fine- to coarse-grained, dark gray, dry, subrounded to angular gravel (0/10/80/10).
70	NA	0			SM	SILTY SAND WITH GRAVEL: fine- to coarse-grained, dark gray, dry, subrounded to angular gravel, increasing silt (0/20/75/5).
75	NA	0				@ 75': (0/15/80/5).
80	NA	0			SM	SILTY SAND WITH GRAVEL AND CLAY: very fine- to fine-grained, brown, silt, subrounded gravel, trace clay (5/20/65/5).

Well: B15 / MW26
Elevation: NE

Cardno ERI
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BORING LOG B15/MW26

Project No.:	31227
Site:	Grant County Airport - Former Fueling Facilities, Moses Lake
Logged By:	Shingo Yamazaki
Reviewed By:	Benjamin T. Kortlever, L.G. 2937
Signature:	

Date Drilled:	05/01/12; 05/10/12; 05/11/12
Drilling Co.:	Cascade Drilling, LP
Clearing Method:	Vac/Air Knife
Drilling Method:	Air Rotary
Sampling Method:	Grab Sample from Cyclone
Borehole Diameter:	10"
Casing Diameter:	4"
Total Depth:	101'
First GW Depth:	87.2'
Well ID:	BHL 177

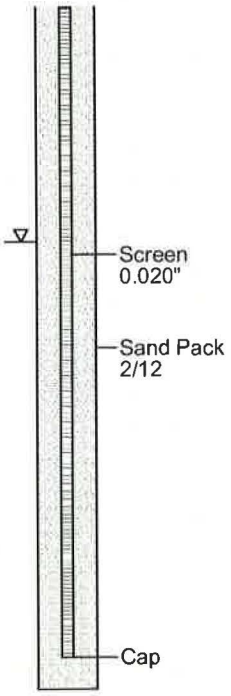
Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: After Completion; During Drilling

Depth (ft)	Blow Count	OVM/PID (ppmv)	Sample	Column	USCS	DESCRIPTION
80						@ 80': as above.
85	NA	95				@ 85': wet, odor.
90	NA	98			SM	@ 90': as above.
95	NA	56				@ 95': as above.
						@ 98': hard drilling.
100	NA	2				@ 100': less odor.
105						
110						
115						
120						

Air Knife/Vacuum: 0' to 5'; 05/01/12.
Air Rotary: 5' to 101'; 05/10/12, 05/11/12.
Bottom of Borehole @ 101'; 05/11/12.
(%Clay / %Silt / %Sand / %Gravel).

Well: B15 / MW26
Elevation: NE



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Appendix C

Laboratory Analytical Reports and Chain of Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Road
Nashville, TN 37204
Tel: 800-765-0980

TestAmerica Job ID: NWE0772
Client Project/Site: 31227
Client Project Description: Moses Lake

For:
Cardno Tukwila
815 Industry Drive
Tukwila, WA 98188

Attn: Ben Kortlever

Authorized for release by:
5/21/2012 2:30:29 PM

Leah R. Klingensmith
Senior Project Management
leah.klingensmith@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Sample Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NWE0772-01	S-80-B12	Soil	05/03/12 11:00	05/05/12 08:50
NWE0772-02	S-90-B12	Soil	05/03/12 11:20	05/05/12 08:50
NWE0772-03	S-100-B12	Soil	05/03/12 11:40	05/05/12 08:50

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Qualifiers

GC Volatiles

Qualifier	Qualifier Description
MNR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike.

GC Semivolatiles

Qualifier	Qualifier Description
QP7	The hydrocarbon pattern most closely resembles a lightweight petroleum product.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Client Sample ID: S-80-B12
Date Collected: 05/03/12 11:00
Date Received: 05/05/12 08:50

Lab Sample ID: NWE0772-01
Matrix: Soil
Percent Solids: 98

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons - RE2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	192		3.82		mg/kg dry	☼	05/10/12 13:44	05/16/12 23:33	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*118*		*50 - 150*	*05/10/12 13:44*	*05/16/12 23:33*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0191		mg/kg dry	☼	05/08/12 17:28	05/12/12 10:45	50.0
Ethylbenzene	ND		0.0382		mg/kg dry	☼	05/08/12 17:28	05/12/12 10:45	50.0
Toluene	ND		0.0382		mg/kg dry	☼	05/08/12 17:28	05/12/12 10:45	50.0
Xylenes, total	ND		0.115		mg/kg dry	☼	05/08/12 17:28	05/12/12 10:45	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*50 - 150*	*05/08/12 17:28*	*05/12/12 10:45*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	58.1	QP7	4.06		mg/kg dry	☼	05/12/12 18:00	05/15/12 11:26	1.00
Motor Oil	ND		4.06		mg/kg dry	☼	05/12/12 18:00	05/15/12 11:26	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*05/12/12 18:00*	*05/15/12 11:26*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	98.0		0.500		%		05/08/12 12:08	05/09/12 09:56	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Client Sample ID: S-90-B12
Date Collected: 05/03/12 11:20
Date Received: 05/05/12 08:50

Lab Sample ID: NWE0772-02
Matrix: Soil
Percent Solids: 79

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	2.91		0.0912		mg/kg dry	☼	05/10/12 13:44	05/16/12 23:54	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*50 - 150*	*05/10/12 13:44*	*05/16/12 23:54*	*1.00*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000536		0.000456		mg/kg dry	☼	05/10/12 13:44	05/16/12 23:54	1.00
Ethylbenzene	ND		0.000912		mg/kg dry	☼	05/10/12 13:44	05/16/12 23:54	1.00
Toluene	ND		0.000912		mg/kg dry	☼	05/10/12 13:44	05/16/12 23:54	1.00
Xylenes, total	ND		0.00274		mg/kg dry	☼	05/10/12 13:44	05/16/12 23:54	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*50 - 150*	*05/10/12 13:44*	*05/16/12 23:54*	*1.00*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	9.00	QP7	5.00		mg/kg dry	☼	05/12/12 18:00	05/15/12 11:43	1.00
Motor Oil	ND		5.00		mg/kg dry	☼	05/12/12 18:00	05/15/12 11:43	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*05/12/12 18:00*	*05/15/12 11:43*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	79.0		0.500		%		05/08/12 12:08	05/09/12 09:56	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Client Sample ID: S-100-B12

Date Collected: 05/03/12 11:40
Date Received: 05/05/12 08:50

Lab Sample ID: NWE0772-03

Matrix: Soil
Percent Solids: 69.7

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	219		5.97		mg/kg dry	☼	05/08/12 17:28	05/12/12 11:51	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*50 - 150*	*05/08/12 17:28*	*05/12/12 11:51*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0299		mg/kg dry	☼	05/08/12 17:28	05/12/12 11:51	50.0
Ethylbenzene	ND		0.0597		mg/kg dry	☼	05/08/12 17:28	05/12/12 11:51	50.0
Toluene	ND		0.0597		mg/kg dry	☼	05/08/12 17:28	05/12/12 11:51	50.0
Xylenes, total	ND		0.179		mg/kg dry	☼	05/08/12 17:28	05/12/12 11:51	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*50 - 150*	*05/08/12 17:28*	*05/12/12 11:51*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	47.2	QP7	5.69		mg/kg dry	☼	05/12/12 18:00	05/15/12 12:03	1.00
Motor Oil	ND		5.69		mg/kg dry	☼	05/12/12 18:00	05/15/12 12:03	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*05/12/12 18:00*	*05/15/12 12:03*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	69.7		0.500		%		05/08/12 12:08	05/09/12 09:56	1.00

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Lab Sample ID: 12E2495-BLK1
Matrix: Soil
Analysis Batch: V007987

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E2495_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/10/12 17:28	05/12/12 07:29	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*50 - 150*	*05/10/12 17:28*	*05/12/12 07:29*	*50.0*

Lab Sample ID: 12E2495-BLK2
Matrix: Soil
Analysis Batch: V007987

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E2495_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/10/12 17:28	05/12/12 15:07	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*50 - 150*	*05/10/12 17:28*	*05/12/12 15:07*	*50.0*

Lab Sample ID: 12E2495-BS2
Matrix: Soil
Analysis Batch: V007987

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E2495_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			1.12	1.10	MNR1	mg/kg wet		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*115*		*50 - 150*

Lab Sample ID: 12E3526-BLK1
Matrix: Soil
Analysis Batch: V008235

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3526_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		0.100		mg/kg wet		05/16/12 11:51	05/16/12 16:13	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*50 - 150*	*05/16/12 11:51*	*05/16/12 16:13*	*1.00*

Lab Sample ID: 12E3526-BLK2
Matrix: Soil
Analysis Batch: V008235

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3526_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		0.100		mg/kg wet		05/16/12 11:51	05/16/12 16:32	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/16/12 11:51*	*05/16/12 16:32*	*1.00*

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons (Continued)

Lab Sample ID: 12E3526-BLK3 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/16/12 11:51	05/16/12 17:42	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/16/12 11:51*	*05/16/12 17:42*	*50.0*

Lab Sample ID: 12E3526-BLK4 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/16/12 11:51	05/16/12 18:02	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*105*		*50 - 150*	*05/16/12 11:51*	*05/16/12 18:02*	*50.0*

Lab Sample ID: 12E3526-BS3 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			10.0	10.9	MNR1	mg/kg wet		109	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*143*		*50 - 150*

Lab Sample ID: 12E3526-BS4 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			10.0	10.7		mg/kg wet		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*138*		*50 - 150*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Lab Sample ID: 12E2495-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V007987 — **Prep Batch: 12E2495_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/10/12 17:28	05/12/12 07:29	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/10/12 17:28	05/12/12 07:29	50.0
Toluene	ND		0.0500		mg/kg wet		05/10/12 17:28	05/12/12 07:29	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/10/12 17:28	05/12/12 07:29	50.0

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B (Continued)

Lab Sample ID: 12E2495-BLK1
Matrix: Soil
Analysis Batch: V007987

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E2495_P

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*99*		*50 - 150*	*05/10/12 17:28*	*05/12/12 07:29*	*50.0*

Lab Sample ID: 12E2495-BLK2
Matrix: Soil
Analysis Batch: V007987

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E2495_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/10/12 17:28	05/12/12 15:07	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/10/12 17:28	05/12/12 15:07	50.0
Toluene	ND		0.0500		mg/kg wet		05/10/12 17:28	05/12/12 15:07	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/10/12 17:28	05/12/12 15:07	50.0

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*99*		*50 - 150*	*05/10/12 17:28*	*05/12/12 15:07*	*50.0*

Lab Sample ID: 12E2495-BS1
Matrix: Soil
Analysis Batch: V007987

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E2495_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.100	MNR1	mg/kg wet		100	76 - 120		
Ethylbenzene			0.100	0.101	MNR1	mg/kg wet		101	77 - 120		
Toluene			0.100	0.100	MNR1	mg/kg wet		100	79 - 120		
Xylenes, total			0.300	0.298	MNR1	mg/kg wet		99	79 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	*96*		*50 - 150*

Lab Sample ID: 12E3526-BLK1
Matrix: Soil
Analysis Batch: V008235

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3526_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.000500		mg/kg wet		05/16/12 11:51	05/16/12 16:13	1.00
Ethylbenzene	ND		0.00100		mg/kg wet		05/16/12 11:51	05/16/12 16:13	1.00
Toluene	ND		0.00100		mg/kg wet		05/16/12 11:51	05/16/12 16:13	1.00
Xylenes, total	ND		0.00300		mg/kg wet		05/16/12 11:51	05/16/12 16:13	1.00

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*88*		*50 - 150*	*05/16/12 11:51*	*05/16/12 16:13*	*1.00*

Lab Sample ID: 12E3526-BLK2
Matrix: Soil
Analysis Batch: V008235

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3526_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.000500		mg/kg wet		05/16/12 11:51	05/16/12 16:32	1.00
Ethylbenzene	ND		0.00100		mg/kg wet		05/16/12 11:51	05/16/12 16:32	1.00
Toluene	ND		0.00100		mg/kg wet		05/16/12 11:51	05/16/12 16:32	1.00

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B (Continued)

Lab Sample ID: 12E3526-BLK2 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, total	ND		0.00300		mg/kg wet		05/16/12 11:51	05/16/12 16:32	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/16/12 11:51*	*05/16/12 16:32*	*1.00*

Lab Sample ID: 12E3526-BLK3 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/16/12 11:51	05/16/12 17:42	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/16/12 11:51	05/16/12 17:42	50.0
Toluene	ND		0.0500		mg/kg wet		05/16/12 11:51	05/16/12 17:42	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/16/12 11:51	05/16/12 17:42	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/16/12 11:51*	*05/16/12 17:42*	*50.0*

Lab Sample ID: 12E3526-BLK4 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/16/12 11:51	05/16/12 18:02	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/16/12 11:51	05/16/12 18:02	50.0
Toluene	ND		0.0500		mg/kg wet		05/16/12 11:51	05/16/12 18:02	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/16/12 11:51	05/16/12 18:02	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*105*		*50 - 150*	*05/16/12 11:51*	*05/16/12 18:02*	*50.0*

Lab Sample ID: 12E3526-BS1 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008235 — **Prep Batch: 12E3526_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.0993	MNR1	mg/kg wet		99	76 - 120
Ethylbenzene	0.100	0.0993	MNR1	mg/kg wet		99	77 - 120
Toluene	0.100	0.101	MNR1	mg/kg wet		101	79 - 120
Xylenes, total	0.300	0.309	MNR1	mg/kg wet		103	79 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*50 - 150*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B (Continued)

Lab Sample ID: 12E3526-BS2
Matrix: Soil
Analysis Batch: V008235

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E3526_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.100		mg/kg wet		100	76 - 120
Ethylbenzene	0.100	0.102		mg/kg wet		102	77 - 120
Toluene	0.100	0.0956		mg/kg wet		96	79 - 120
Xylenes, total	0.300	0.300		mg/kg wet		100	79 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*108*		*50 - 150*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Lab Sample ID: 12E1557-BLK1
Matrix: Soil
Analysis Batch: V008047

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E1557_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	ND		4.00		mg/kg wet		05/12/12 18:00	05/14/12 13:04	1.00
Motor Oil	ND		4.00		mg/kg wet		05/12/12 18:00	05/14/12 13:04	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*50 - 150*	*05/12/12 18:00*	*05/14/12 13:04*	*1.00*

Lab Sample ID: 12E1557-BS1
Matrix: Soil
Analysis Batch: V008047

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E1557_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel	40.0	42.6		mg/kg wet		106	55 - 129

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*84*		*50 - 150*

Lab Sample ID: 12E1557-MS1
Matrix: Soil
Analysis Batch: V008047

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 12E1557_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel	ND		46.0	43.8		mg/kg dry	☼	95	10 - 153

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
o-Terphenyl	*80*		*50 - 150*

Lab Sample ID: 12E1557-MSD1
Matrix: Soil
Analysis Batch: V008047

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 12E1557_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel	ND		46.0	45.4		mg/kg dry	☼	99	10 - 153	4	50

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment (Continued)

Lab Sample ID: 12E1557-MSD1 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008047 — **Prep Batch: 12E1557_P**

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
o-Terphenyl	*86*		*50 - 150*

Method: SW-846 - General Chemistry Parameters

Lab Sample ID: 12E1567-DUP1 — **Client Sample ID: Duplicate**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 12E1567 — **Prep Batch: 12E1567_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
% Dry Solids	84.2			85.2		%				1	20

GC Volatiles

Analysis Batch: V007987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E2495-BLK1	Method Blank	Total	Soil	SW846 8021B	12E2495_P
12E2495-BLK1	Method Blank	Total	Soil	NWTPH-Gx	12E2495_P
12E2495-BLK2	Method Blank	Total	Soil	SW846 8021B	12E2495_P
12E2495-BLK2	Method Blank	Total	Soil	NWTPH-Gx	12E2495_P
12E2495-BS1	Lab Control Sample	Total	Soil	SW846 8021B	12E2495_P
12E2495-BS2	Lab Control Sample	Total	Soil	NWTPH-Gx	12E2495_P
NWE0772-01	S-80-B12	Total	Soil	SW846 8021B	12E2495_P
NWE0772-03	S-100-B12	Total	Soil	SW846 8021B	12E2495_P
NWE0772-03	S-100-B12	Total	Soil	NWTPH-Gx	12E2495_P

Analysis Batch: V008235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3526-BLK1	Method Blank	Total	Soil	SW846 8021B	12E3526_P
12E3526-BLK1	Method Blank	Total	Soil	NWTPH-Gx	12E3526_P
12E3526-BLK2	Method Blank	Total	Soil	SW846 8021B	12E3526_P
12E3526-BLK2	Method Blank	Total	Soil	NWTPH-Gx	12E3526_P
12E3526-BLK3	Method Blank	Total	Soil	SW846 8021B	12E3526_P
12E3526-BLK3	Method Blank	Total	Soil	NWTPH-Gx	12E3526_P
12E3526-BLK4	Method Blank	Total	Soil	SW846 8021B	12E3526_P
12E3526-BLK4	Method Blank	Total	Soil	NWTPH-Gx	12E3526_P
12E3526-BS1	Lab Control Sample	Total	Soil	SW846 8021B	12E3526_P
12E3526-BS2	Lab Control Sample	Total	Soil	SW846 8021B	12E3526_P
12E3526-BS3	Lab Control Sample	Total	Soil	NWTPH-Gx	12E3526_P
12E3526-BS4	Lab Control Sample	Total	Soil	NWTPH-Gx	12E3526_P
NWE0772-01 - RE2	S-80-B12	Total	Soil	NWTPH-Gx	12E3526_P
NWE0772-02 - RE1	S-90-B12	Total	Soil	SW846 8021B	12E3526_P
NWE0772-02 - RE1	S-90-B12	Total	Soil	NWTPH-Gx	12E3526_P

Prep Batch: 12E2495_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E2495-BLK1	Method Blank	Total	Soil	EPA 5035A (GC)	
12E2495-BLK2	Method Blank	Total	Soil	EPA 5035A (GC)	
12E2495-BS1	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E2495-BS2	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
NWE0772-01	S-80-B12	Total	Soil	EPA 5035A (GC)	
NWE0772-03	S-100-B12	Total	Soil	EPA 5035A (GC)	

Prep Batch: 12E3526_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3526-BLK1	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3526-BLK2	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3526-BLK3	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3526-BLK4	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3526-BS1	Lab Control Sample	Total	Soil	EPA 5035A (GC)	

GC Volatiles (Continued)

Prep Batch: 12E3526_P (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3526-BS2	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E3526-BS3	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E3526-BS4	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
NWE0772-01 - RE2	S-80-B12	Total	Soil	EPA 5035A (GC)	
NWE0772-02 - RE1	S-90-B12	Total	Soil	EPA 5035A (GC)	

GC Semivolatiles

Analysis Batch: V008047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E1557-BLK1	Method Blank	Total	Soil	NWTPH-Dx	12E1557_P
12E1557-BS1	Lab Control Sample	Total	Soil	NWTPH-Dx	12E1557_P
12E1557-MS1	Matrix Spike	Total	Soil	NWTPH-Dx	12E1557_P
12E1557-MSD1	Matrix Spike Duplicate	Total	Soil	NWTPH-Dx	12E1557_P

Analysis Batch: V008175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
NWE0772-01	S-80-B12	Total	Soil	NWTPH-Dx	12E1557_P
NWE0772-02	S-90-B12	Total	Soil	NWTPH-Dx	12E1557_P
NWE0772-03	S-100-B12	Total	Soil	NWTPH-Dx	12E1557_P

Prep Batch: 12E1557_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E1557-BLK1	Method Blank	Total	Soil	EPA 3550B	
12E1557-BS1	Lab Control Sample	Total	Soil	EPA 3550B	
12E1557-MS1	Matrix Spike	Total	Soil	EPA 3550B	
12E1557-MSD1	Matrix Spike Duplicate	Total	Soil	EPA 3550B	
NWE0772-01	S-80-B12	Total	Soil	EPA 3550B	
NWE0772-02	S-90-B12	Total	Soil	EPA 3550B	
NWE0772-03	S-100-B12	Total	Soil	EPA 3550B	

Extractions

Analysis Batch: 12E1567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E1567-DUP1	Duplicate	Total	Soil	SW-846	12E1567_P
NWE0772-01	S-80-B12	Total	Soil	SW-846	12E1567_P
NWE0772-02	S-90-B12	Total	Soil	SW-846	12E1567_P
NWE0772-03	S-100-B12	Total	Soil	SW-846	12E1567_P

Prep Batch: 12E1567_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E1567-DUP1	Duplicate	Total	Soil	% Solids	
NWE0772-01	S-80-B12	Total	Soil	% Solids	
NWE0772-02	S-90-B12	Total	Soil	% Solids	
NWE0772-03	S-100-B12	Total	Soil	% Solids	

Lab Chronicle

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Client Sample ID: S-80-B12

Lab Sample ID: NWE0772-01

Date Collected: 05/03/12 11:00

Matrix: Soil

Date Received: 05/05/12 08:50

Percent Solids: 98

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.749	12E2495_P	05/08/12 17:28	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V007987	05/12/12 10:45	KAR2	TAL NSH
Total	Prep	EPA 5035A (GC)	RE2	0.749	12E3526_P	05/10/12 13:44	AAN	TAL NSH
Total	Analysis	NWTPH-Gx	RE2	50.0	V008235	05/16/12 23:33	AVR	TAL NSH
Total	Prep	EPA 3550B		0.995	12E1557_P	05/12/12 18:00	JJR	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008175	05/15/12 11:26	JLF	TAL NSH
Total	Prep	% Solids		1.00	12E1567_P	05/08/12 12:08	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E1567	05/09/12 09:56	RRS	TAL NSH

Client Sample ID: S-90-B12

Lab Sample ID: NWE0772-02

Date Collected: 05/03/12 11:20

Matrix: Soil

Date Received: 05/05/12 08:50

Percent Solids: 79

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)	RE1	0.720	12E3526_P	05/10/12 13:44	AAN	TAL NSH
Total	Analysis	SW846 8021B	RE1	1.00	V008235	05/16/12 23:54	AVR	TAL NSH
Total	Analysis	NWTPH-Gx	RE1	1.00	V008235	05/16/12 23:54	AVR	TAL NSH
Total	Prep	EPA 3550B		0.988	12E1557_P	05/12/12 18:00	JJR	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008175	05/15/12 11:43	JLF	TAL NSH
Total	Prep	% Solids		1.00	12E1567_P	05/08/12 12:08	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E1567	05/09/12 09:56	RRS	TAL NSH

Client Sample ID: S-100-B12

Lab Sample ID: NWE0772-03

Date Collected: 05/03/12 11:40

Matrix: Soil

Date Received: 05/05/12 08:50

Percent Solids: 69.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.832	12E2495_P	05/08/12 17:28	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V007987	05/12/12 11:51	KAR2	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V007987	05/12/12 11:51	KAR2	TAL NSH
Total	Prep	EPA 3550B		0.992	12E1557_P	05/12/12 18:00	JJR	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008175	05/15/12 12:03	JLF	TAL NSH
Total	Prep	% Solids		1.00	12E1567_P	05/08/12 12:08	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E1567	05/09/12 09:56	RRS	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Method Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Method	Method Description	Protocol	Laboratory
SW-846	General Chemistry Parameters		TAL NSH
NWTPH-Gx	Purgeable Petroleum Hydrocarbons		TAL NSH
SW846 8021B	Volatile Organic Compounds by EPA Method 8021B		TAL NSH
NWTPH-Dx	Extractable Petroleum Hydrocarbons with Silica Gel Treatment		TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Certification Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE0772

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Nashville		ACIL		393
TestAmerica Nashville	A2LA	ISO/IEC 17025		0453.07
TestAmerica Nashville	Alabama	State Program	4	41150
TestAmerica Nashville	Alaska (UST)	State Program	10	UST-087
TestAmerica Nashville	Arizona	State Program	9	AZ0473
TestAmerica Nashville	Arkansas DEQ	State Program	6	88-0737
TestAmerica Nashville	California	NELAC	9	1168CA
TestAmerica Nashville	Canadian Assoc Lab Accred (CALA)	Canada		3744
TestAmerica Nashville	Colorado	State Program	8	N/A
TestAmerica Nashville	Connecticut	State Program	1	PH-0220
TestAmerica Nashville	Florida	NELAC	4	E87358
TestAmerica Nashville	Illinois	NELAC	5	200010
TestAmerica Nashville	Iowa	State Program	7	131
TestAmerica Nashville	Kansas	NELAC	7	E-10229
TestAmerica Nashville	Kentucky	State Program	4	90038
TestAmerica Nashville	Kentucky (UST)	State Program	4	19
TestAmerica Nashville	Louisiana	NELAC	6	30613
TestAmerica Nashville	Louisiana	NELAC	6	LA110014
TestAmerica Nashville	Maryland	State Program	3	316
TestAmerica Nashville	Massachusetts	State Program	1	M-TN032
TestAmerica Nashville	Minnesota	NELAC	5	047-999-345
TestAmerica Nashville	Mississippi	State Program	4	N/A
TestAmerica Nashville	Montana (UST)	State Program	8	NA
TestAmerica Nashville	New Hampshire	NELAC	1	2963
TestAmerica Nashville	New Jersey	NELAC	2	TN965
TestAmerica Nashville	New York	NELAC	2	11342
TestAmerica Nashville	North Carolina DENR	State Program	4	387
TestAmerica Nashville	North Dakota	State Program	8	R-146
TestAmerica Nashville	Ohio VAP	State Program	5	CL0033
TestAmerica Nashville	Oklahoma	State Program	6	9412
TestAmerica Nashville	Oregon	NELAC	10	TN200001
TestAmerica Nashville	Pennsylvania	NELAC	3	68-00585
TestAmerica Nashville	Rhode Island	State Program	1	LAO00268
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	Tennessee	State Program	4	2008
TestAmerica Nashville	Texas	NELAC	6	T104704077-09-TX
TestAmerica Nashville	USDA	Federal		S-48469
TestAmerica Nashville	Utah	NELAC	8	TAN
TestAmerica Nashville	Virginia	NELAC	3	460152
TestAmerica Nashville	Virginia	State Program	3	00323
TestAmerica Nashville	Washington	State Program	10	C789
TestAmerica Nashville	West Virginia DEP	State Program	3	219
TestAmerica Nashville	Wisconsin	State Program	5	998020430
TestAmerica Nashville	Wyoming (UST)	A2LA	8	453.07

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIP

NWE0772

Cooler Received/Opened On 5/5/2012 @ 0850

1. Tracking # 5742 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 97460373

2. Temperature of rep. sample or temp blank when opened: 2.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? ~~Bubblewrap~~ Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA Sac'd

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...# _____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 6/24/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

ExxonMobil

NWE0772
05/21/12 23:59

5/21/2012

Consultant Name: Cardno ERI
Consultant Address: 815 Industry Drive
Consultant City/State/Zip: Tukwila, WA 98188
ExxonMobil Project Mgr: Jennifer Sedlachek
Consultant Project Mgr: Ben Kortlever
Consultant Telephone Number: (206) 575-6220 Fax No.: (206) 575-6423
Sampler Name (Print): SHINGO YAMAZAKI
Sampler Signature:

Account #: PO#:
Invoice To: Cardno ERI c/o Ben Kortlever
Report To: Ben Kortlever
ERI Project #/Activity #: 03122702L
ExxonMobil Site #: Moses Lake Major Project (AFE #): EG.2010.74500
Site Address: 7810 Andrews Street NE
Site City, State, Zip: Moses Lake, WA 98837
Oversight Agency: Washington Department of Ecology

	Sample ID	Field Point Name/ Location ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify):	Analyze For: BTEX by 8021B	TPHg by NWTPH-Gx	TPHd by NWTPH-Dx	TPHmo by NWTPH-Dx	RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
1	S-80-B12	B12	5/3/12	11:00	8	X			3	3								2					X			X	X	X	X			X	
2	S-90-B12	B12	5/3/12	11:20	8	X			3	3								2					X			X	X	X	X			X	
3	S-100-B12	B12	5/3/12	11:40	8	X			3	3								2					X			X	X	X	X			X	

Comments/Special Instructions:
Please inlude silica gel cleanup. Report results on a dry weight basis.

PLEASE E-MAIL ALL PDF FILES TO
ERI-EIMLABS@eri-us.com

Laboratory Comments:
Temperature Upon Receipt 2.4
Sample Containers Intact? Y N
VOA Vials Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ TestAmerica Project Manager or attach specific instructions

Relinquished by:		Date	Time	Received by:	Date	Time
		05/04/12	10:00		5/5/12	08:50
Relinquished by:		Date	Time	Received by (Lab personnel):	Date	Time

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Road
Nashville, TN 37204
Tel: 800-765-0980

TestAmerica Job ID: NWE1412
Client Project/Site: 31227
Client Project Description: Moses Lake

For:
Cardno Tukwila
815 Industry Drive
Tukwila, WA 98188

Attn: Ben Kortlever

Authorized for release by:
5/25/2012 1:40:36 PM

Leah R. Klingensmith
Senior Project Management
leah.klingensmith@testamericainc.com

Table of Contents

Sample Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NWE1412-01	S-77-B13	Soil	05/07/12 08:45	05/11/12 08:30
NWE1412-02	S-90-B13	Soil	05/07/12 09:00	05/11/12 08:30
NWE1412-03	S-100-B13	Soil	05/07/12 09:15	05/11/12 08:30
NWE1412-04	S-80-B14	Soil	05/08/12 16:00	05/11/12 08:30
NWE1412-05	S-90-B14	Soil	05/08/12 16:40	05/11/12 08:30
NWE1412-06	S-100-B14	Soil	05/09/12 07:30	05/11/12 08:30

Definitions/Glossary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Qualifiers

GC Volatiles

Qualifier	Qualifier Description
MNR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike.

GC Semivolatiles

Qualifier	Qualifier Description
M7	The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
R2	The RPD exceeded the acceptance limit.
ZX	Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.
QP5	There was insufficient contamination present to perform a pattern match.
QP7	The hydrocarbon pattern most closely resembles a lightweight petroleum product.
QP6	The contamination did not match any standards in our library.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-77-B13
Date Collected: 05/07/12 08:45
Date Received: 05/11/12 08:30

Lab Sample ID: NWE1412-01
Matrix: Soil
Percent Solids: 79

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	189		6.76		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:17	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*50 - 150*	*05/15/12 00:00*	*05/18/12 01:17*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0338		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:17	50.0
Ethylbenzene	ND		0.0676		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:17	50.0
Toluene	ND		0.0676		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:17	50.0
Xylenes, total	ND		0.203		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:17	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*50 - 150*	*05/15/12 00:00*	*05/18/12 01:17*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	7.01	QP5	5.05		mg/kg dry	☼	05/17/12 10:45	05/18/12 23:30	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*05/17/12 10:45*	*05/18/12 23:30*	*1.00*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	905	M7 QP7	50.5		mg/kg dry	☼	05/17/12 10:45	05/19/12 07:52	10.0

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	79.0		0.500		%		05/14/12 15:23	05/15/12 07:16	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-90-B13
Date Collected: 05/07/12 09:00
Date Received: 05/11/12 08:30

Lab Sample ID: NWE1412-02
Matrix: Soil
Percent Solids: 74.4

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	412		5.52		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:43	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*50 - 150*	*05/15/12 00:00*	*05/18/12 01:43*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0276		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:43	50.0
Ethylbenzene	0.179		0.0552		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:43	50.0
Toluene	ND		0.0552		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:43	50.0
Xylenes, total	0.416		0.166		mg/kg dry	☼	05/15/12 00:00	05/18/12 01:43	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*50 - 150*	*05/15/12 00:00*	*05/18/12 01:43*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	ND		5.25		mg/kg dry	☼	05/17/12 10:45	05/18/12 23:45	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*05/17/12 10:45*	*05/18/12 23:45*	*1.00*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	805	QP7	52.5		mg/kg dry	☼	05/17/12 10:45	05/19/12 07:08	10.0

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	74.4		0.500		%		05/14/12 15:23	05/15/12 07:16	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-100-B13
Date Collected: 05/07/12 09:15
Date Received: 05/11/12 08:30

Lab Sample ID: NWE1412-03
Matrix: Soil
Percent Solids: 62.8

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	15.0		4.35		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:09	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*50 - 150*	*05/15/12 00:00*	*05/18/12 02:09*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0217		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:09	50.0
Ethylbenzene	ND		0.0435		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:09	50.0
Toluene	ND		0.0435		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:09	50.0
Xylenes, total	ND		0.130		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:09	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*50 - 150*	*05/15/12 00:00*	*05/18/12 02:09*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	154	QP7	6.27		mg/kg dry	☼	05/17/12 10:45	05/18/12 23:59	1.00
Motor Oil	68.3	QP6	6.27		mg/kg dry	☼	05/17/12 10:45	05/18/12 23:59	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*05/17/12 10:45*	*05/18/12 23:59*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	62.8		0.500		%		05/14/12 15:23	05/15/12 07:16	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-80-B14
Date Collected: 05/08/12 16:00
Date Received: 05/11/12 08:30

Lab Sample ID: NWE1412-04
Matrix: Soil
Percent Solids: 95.6

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		4.63		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:35	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/15/12 00:00*	*05/18/12 02:35*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0231		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:35	50.0
Ethylbenzene	ND		0.0463		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:35	50.0
Toluene	ND		0.0463		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:35	50.0
Xylenes, total	ND		0.139		mg/kg dry	☼	05/15/12 00:00	05/18/12 02:35	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/15/12 00:00*	*05/18/12 02:35*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	ND		4.11		mg/kg dry	☼	05/17/12 10:45	05/19/12 00:14	1.00
Motor Oil	ND		4.11		mg/kg dry	☼	05/17/12 10:45	05/19/12 00:14	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*05/17/12 10:45*	*05/19/12 00:14*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	**95.6**		0.500		%		05/14/12 15:23	05/15/12 07:16	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-90-B14
Date Collected: 05/08/12 16:40
Date Received: 05/11/12 08:30

Lab Sample ID: NWE1412-05
Matrix: Soil
Percent Solids: 68.7

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	87.8		4.70		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:01	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*50 - 150*	*05/15/12 00:00*	*05/18/12 03:01*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0235		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:01	50.0
Ethylbenzene	ND		0.0470		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:01	50.0
Toluene	ND		0.0470		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:01	50.0
Xylenes, total	ND		0.141		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:01	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*50 - 150*	*05/15/12 00:00*	*05/18/12 03:01*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	7.70	QP5	5.69		mg/kg dry	☼	05/17/12 10:45	05/19/12 00:28	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*79*		*50 - 150*	*05/17/12 10:45*	*05/19/12 00:28*	*1.00*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	528	QP7	22.8		mg/kg dry	☼	05/17/12 10:45	05/19/12 06:40	4.00

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	68.7		0.500		%		05/14/12 15:23	05/15/12 07:16	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-100-B14
Date Collected: 05/09/12 07:30
Date Received: 05/11/12 08:30

Lab Sample ID: NWE1412-06
Matrix: Soil
Percent Solids: 83.8

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	10.8		5.05		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:27	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*50 - 150*	*05/15/12 00:00*	*05/18/12 03:27*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0253		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:27	50.0
Ethylbenzene	ND		0.0505		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:27	50.0
Toluene	ND		0.0505		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:27	50.0
Xylenes, total	ND		0.152		mg/kg dry	☼	05/15/12 00:00	05/18/12 03:27	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*50 - 150*	*05/15/12 00:00*	*05/18/12 03:27*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	7.98	QP5	4.73		mg/kg dry	☼	05/17/12 10:45	05/19/12 00:42	1.00
Motor Oil	ND		4.73		mg/kg dry	☼	05/17/12 10:45	05/19/12 00:42	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*78*		*50 - 150*	*05/17/12 10:45*	*05/19/12 00:42*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	83.8		0.500		%		05/14/12 15:23	05/15/12 07:16	1.00

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Lab Sample ID: 12E3220-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008264 — **Prep Batch: 12E3220_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/15/12 10:02	05/17/12 17:53	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*50 - 150*	*05/15/12 10:02*	*05/17/12 17:53*	*50.0*

Lab Sample ID: 12E3220-BLK2 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008264 — **Prep Batch: 12E3220_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/15/12 10:02	05/18/12 00:24	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*50 - 150*	*05/15/12 10:02*	*05/18/12 00:24*	*50.0*

Lab Sample ID: 12E3220-BS1 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008264 — **Prep Batch: 12E3220_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			1.00	1.15	MNR1	mg/kg wet		115	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*93*		*50 - 150*

Lab Sample ID: 12E3220-BS4 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008264 — **Prep Batch: 12E3220_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			1.00	1.19		mg/kg wet		119	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*81*		*50 - 150*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Lab Sample ID: 12E3220-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008264 — **Prep Batch: 12E3220_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/15/12 10:02	05/17/12 17:53	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/15/12 10:02	05/17/12 17:53	50.0
Toluene	ND		0.0500		mg/kg wet		05/15/12 10:02	05/17/12 17:53	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/15/12 10:02	05/17/12 17:53	50.0

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B (Continued)

Lab Sample ID: 12E3220-BLK1
Matrix: Soil
Analysis Batch: V008264

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3220_P

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	101		50 - 150	05/15/12 10:02	05/17/12 17:53	50.0

Lab Sample ID: 12E3220-BLK2
Matrix: Soil
Analysis Batch: V008264

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3220_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/15/12 10:02	05/18/12 00:24	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/15/12 10:02	05/18/12 00:24	50.0
Toluene	ND		0.0500		mg/kg wet		05/15/12 10:02	05/18/12 00:24	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/15/12 10:02	05/18/12 00:24	50.0

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	94		50 - 150	05/15/12 10:02	05/18/12 00:24	50.0

Lab Sample ID: 12E3220-BS2
Matrix: Soil
Analysis Batch: V008264

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E3220_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.0981	MNR1	mg/kg wet		98	76 - 120
Ethylbenzene	0.100	0.107	MNR1	mg/kg wet		107	77 - 120
Toluene	0.100	0.101	MNR1	mg/kg wet		101	79 - 120
Xylenes, total	0.300	0.298	MNR1	mg/kg wet		99	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	103		50 - 150

Lab Sample ID: 12E3220-BS3
Matrix: Soil
Analysis Batch: V008264

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E3220_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.0818		mg/kg wet		82	76 - 120
Ethylbenzene	0.100	0.105		mg/kg wet		105	77 - 120
Toluene	0.100	0.0947		mg/kg wet		95	79 - 120
Xylenes, total	0.300	0.294		mg/kg wet		98	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	95		50 - 150

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Lab Sample ID: 12E2826-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008364 — **Prep Batch: 12E2826_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	ND		4.00		mg/kg wet		05/17/12 10:45	05/18/12 22:33	1.00
Motor Oil	ND		4.00		mg/kg wet		05/17/12 10:45	05/18/12 22:33	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*05/17/12 10:45*	*05/18/12 22:33*	*1.00*

Lab Sample ID: 12E2826-BS1 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008364 — **Prep Batch: 12E2826_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel			40.0	36.6		mg/kg wet		92	55 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*82*		*50 - 150*

Lab Sample ID: 12E2826-MS1 — **Client Sample ID: S-77-B13**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008364 — **Prep Batch: 12E2826_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel	70.0		50.1	94.2		mg/kg dry	☼	48	10 - 153		

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*

Lab Sample ID: 12E2826-MSD1 — **Client Sample ID: S-77-B13**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008364 — **Prep Batch: 12E2826_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel	70.0		50.4	564	M7 R2	mg/kg dry	☼	980	10 - 153	143	50

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
o-Terphenyl	*221*	*ZX*	*50 - 150*

Method: SW-846 - General Chemistry Parameters

Lab Sample ID: 12E3053-DUP1 — **Client Sample ID: S-77-B13**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 12E3053 — **Prep Batch: 12E3053_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
% Dry Solids	79.0			78.7		%				0.3	20

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Analysis Batch: V008264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3220-BLK1	Method Blank	Total	Soil	SW846 8021B	12E3220_P
12E3220-BLK1	Method Blank	Total	Soil	NWTPH-Gx	12E3220_P
12E3220-BLK2	Method Blank	Total	Soil	SW846 8021B	12E3220_P
12E3220-BLK2	Method Blank	Total	Soil	NWTPH-Gx	12E3220_P
12E3220-BS1	Lab Control Sample	Total	Soil	NWTPH-Gx	12E3220_P
12E3220-BS2	Lab Control Sample	Total	Soil	SW846 8021B	12E3220_P
12E3220-BS3	Lab Control Sample	Total	Soil	SW846 8021B	12E3220_P
12E3220-BS4	Lab Control Sample	Total	Soil	NWTPH-Gx	12E3220_P
NWE1412-01	S-77-B13	Total	Soil	SW846 8021B	12E3220_P
NWE1412-01	S-77-B13	Total	Soil	NWTPH-Gx	12E3220_P
NWE1412-02	S-90-B13	Total	Soil	SW846 8021B	12E3220_P
NWE1412-02	S-90-B13	Total	Soil	NWTPH-Gx	12E3220_P
NWE1412-03	S-100-B13	Total	Soil	SW846 8021B	12E3220_P
NWE1412-03	S-100-B13	Total	Soil	NWTPH-Gx	12E3220_P
NWE1412-04	S-80-B14	Total	Soil	SW846 8021B	12E3220_P
NWE1412-04	S-80-B14	Total	Soil	NWTPH-Gx	12E3220_P
NWE1412-05	S-90-B14	Total	Soil	SW846 8021B	12E3220_P
NWE1412-05	S-90-B14	Total	Soil	NWTPH-Gx	12E3220_P
NWE1412-06	S-100-B14	Total	Soil	SW846 8021B	12E3220_P
NWE1412-06	S-100-B14	Total	Soil	NWTPH-Gx	12E3220_P

Prep Batch: 12E3220_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3220-BLK1	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3220-BLK2	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3220-BS1	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E3220-BS2	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E3220-BS3	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E3220-BS4	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
NWE1412-01	S-77-B13	Total	Soil	EPA 5035A (GC)	
NWE1412-02	S-90-B13	Total	Soil	EPA 5035A (GC)	
NWE1412-03	S-100-B13	Total	Soil	EPA 5035A (GC)	
NWE1412-04	S-80-B14	Total	Soil	EPA 5035A (GC)	
NWE1412-05	S-90-B14	Total	Soil	EPA 5035A (GC)	
NWE1412-06	S-100-B14	Total	Soil	EPA 5035A (GC)	

GC Semivolatiles

Analysis Batch: V008364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E2826-BLK1	Method Blank	Total	Soil	NWTPH-Dx	12E2826_P
12E2826-BS1	Lab Control Sample	Total	Soil	NWTPH-Dx	12E2826_P
12E2826-MS1	S-77-B13	Total	Soil	NWTPH-Dx	12E2826_P

GC Semivolatiles (Continued)

Analysis Batch: V008364 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E2826-MSD1	S-77-B13	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-01	S-77-B13	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-01 - RE1	S-77-B13	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-02	S-90-B13	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-02 - RE1	S-90-B13	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-03	S-100-B13	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-04	S-80-B14	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-05	S-90-B14	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-05 - RE1	S-90-B14	Total	Soil	NWTPH-Dx	12E2826_P
NWE1412-06	S-100-B14	Total	Soil	NWTPH-Dx	12E2826_P

Prep Batch: 12E2826_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E2826-BLK1	Method Blank	Total	Soil	EPA 3550B	
12E2826-BS1	Lab Control Sample	Total	Soil	EPA 3550B	
12E2826-MS1	S-77-B13	Total	Soil	EPA 3550B	
12E2826-MSD1	S-77-B13	Total	Soil	EPA 3550B	
NWE1412-01	S-77-B13	Total	Soil	EPA 3550B	
NWE1412-01 - RE1	S-77-B13	Total	Soil	EPA 3550B	
NWE1412-02	S-90-B13	Total	Soil	EPA 3550B	
NWE1412-02 - RE1	S-90-B13	Total	Soil	EPA 3550B	
NWE1412-03	S-100-B13	Total	Soil	EPA 3550B	
NWE1412-04	S-80-B14	Total	Soil	EPA 3550B	
NWE1412-05	S-90-B14	Total	Soil	EPA 3550B	
NWE1412-05 - RE1	S-90-B14	Total	Soil	EPA 3550B	
NWE1412-06	S-100-B14	Total	Soil	EPA 3550B	

Extractions

Analysis Batch: 12E3053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3053-DUP1	S-77-B13	Total	Soil	SW-846	12E3053_P
NWE1412-01	S-77-B13	Total	Soil	SW-846	12E3053_P
NWE1412-02	S-90-B13	Total	Soil	SW-846	12E3053_P
NWE1412-03	S-100-B13	Total	Soil	SW-846	12E3053_P
NWE1412-04	S-80-B14	Total	Soil	SW-846	12E3053_P
NWE1412-05	S-90-B14	Total	Soil	SW-846	12E3053_P
NWE1412-06	S-100-B14	Total	Soil	SW-846	12E3053_P

Prep Batch: 12E3053_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3053-DUP1	S-77-B13	Total	Soil	% Solids	
NWE1412-01	S-77-B13	Total	Soil	% Solids	
NWE1412-02	S-90-B13	Total	Soil	% Solids	
NWE1412-03	S-100-B13	Total	Soil	% Solids	
NWE1412-04	S-80-B14	Total	Soil	% Solids	
NWE1412-05	S-90-B14	Total	Soil	% Solids	
NWE1412-06	S-100-B14	Total	Soil	% Solids	

Lab Chronicle

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-77-B13

Lab Sample ID: NWE1412-01

Date Collected: 05/07/12 08:45
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 79

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		1.07	12E3220_P	05/15/12 00:00	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008264	05/18/12 01:17	AVR	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008264	05/18/12 01:17	AVR	TAL NSH
Total	Prep	EPA 3550B		0.998	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008364	05/18/12 23:30	GMH	TAL NSH
Total	Prep	EPA 3550B	RE1	0.998	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx	RE1	10.0	V008364	05/19/12 07:52	GMH	TAL NSH
Total	Prep	% Solids		1.00	12E3053_P	05/14/12 15:23	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E3053	05/15/12 07:16	KDJ	TAL NSH

Client Sample ID: S-90-B13

Lab Sample ID: NWE1412-02

Date Collected: 05/07/12 09:00
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 74.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.822	12E3220_P	05/15/12 00:00	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008264	05/18/12 01:43	AVR	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008264	05/18/12 01:43	AVR	TAL NSH
Total	Prep	EPA 3550B		0.977	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008364	05/18/12 23:45	GMH	TAL NSH
Total	Prep	EPA 3550B	RE1	0.977	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx	RE1	10.0	V008364	05/19/12 07:08	GMH	TAL NSH
Total	Prep	% Solids		1.00	12E3053_P	05/14/12 15:23	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E3053	05/15/12 07:16	KDJ	TAL NSH

Client Sample ID: S-100-B13

Lab Sample ID: NWE1412-03

Date Collected: 05/07/12 09:15
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 62.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.546	12E3220_P	05/15/12 00:00	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008264	05/18/12 02:09	AVR	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008264	05/18/12 02:09	AVR	TAL NSH
Total	Prep	EPA 3550B		0.984	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008364	05/18/12 23:59	GMH	TAL NSH
Total	Prep	% Solids		1.00	12E3053_P	05/14/12 15:23	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E3053	05/15/12 07:16	KDJ	TAL NSH

Client Sample ID: S-80-B14

Lab Sample ID: NWE1412-04

Date Collected: 05/08/12 16:00
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.885	12E3220_P	05/15/12 00:00	AAN	TAL NSH

Lab Chronicle

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Client Sample ID: S-80-B14

Lab Sample ID: NWE1412-04

Date Collected: 05/08/12 16:00
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	SW846 8021B		50.0	V008264	05/18/12 02:35	AVR	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008264	05/18/12 02:35	AVR	TAL NSH
Total	Prep	EPA 3550B		0.982	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008364	05/19/12 00:14	GMH	TAL NSH
Total	Prep	% Solids		1.00	12E3053_P	05/14/12 15:23	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E3053	05/15/12 07:16	KDJ	TAL NSH

Client Sample ID: S-90-B14

Lab Sample ID: NWE1412-05

Date Collected: 05/08/12 16:40
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 68.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.646	12E3220_P	05/15/12 00:00	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008264	05/18/12 03:01	AVR	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008264	05/18/12 03:01	AVR	TAL NSH
Total	Prep	EPA 3550B		0.977	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008364	05/19/12 00:28	GMH	TAL NSH
Total	Prep	EPA 3550B	RE1	0.977	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx	RE1	4.00	V008364	05/19/12 06:40	GMH	TAL NSH
Total	Prep	% Solids		1.00	12E3053_P	05/14/12 15:23	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E3053	05/15/12 07:16	KDJ	TAL NSH

Client Sample ID: S-100-B14

Lab Sample ID: NWE1412-06

Date Collected: 05/09/12 07:30
Matrix: Soil
Date Received: 05/11/12 08:30
Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.847	12E3220_P	05/15/12 00:00	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008264	05/18/12 03:27	AVR	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008264	05/18/12 03:27	AVR	TAL NSH
Total	Prep	EPA 3550B		0.992	12E2826_P	05/17/12 10:45	MWT	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008364	05/19/12 00:42	GMH	TAL NSH
Total	Prep	% Solids		1.00	12E3053_P	05/14/12 15:23	RRS	TAL NSH
Total	Analysis	SW-846		1.00	12E3053	05/15/12 07:16	KDJ	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Method Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Method	Method Description	Protocol	Laboratory
SW-846	General Chemistry Parameters		TAL NSH
NWTPH-Gx	Purgeable Petroleum Hydrocarbons		TAL NSH
SW846 8021B	Volatile Organic Compounds by EPA Method 8021B		TAL NSH
NWTPH-Dx	Extractable Petroleum Hydrocarbons with Silica Gel Treatment		TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Certification Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1412

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Nashville		ACIL		393
TestAmerica Nashville	A2LA	ISO/IEC 17025		0453.07
TestAmerica Nashville	Alabama	State Program	4	41150
TestAmerica Nashville	Alaska (UST)	State Program	10	UST-087
TestAmerica Nashville	Arizona	State Program	9	AZ0473
TestAmerica Nashville	Arkansas DEQ	State Program	6	88-0737
TestAmerica Nashville	California	NELAC	9	1168CA
TestAmerica Nashville	Canadian Assoc Lab Accred (CALA)	Canada		3744
TestAmerica Nashville	Colorado	State Program	8	N/A
TestAmerica Nashville	Connecticut	State Program	1	PH-0220
TestAmerica Nashville	Florida	NELAC	4	E87358
TestAmerica Nashville	Illinois	NELAC	5	200010
TestAmerica Nashville	Iowa	State Program	7	131
TestAmerica Nashville	Kansas	NELAC	7	E-10229
TestAmerica Nashville	Kentucky	State Program	4	90038
TestAmerica Nashville	Kentucky (UST)	State Program	4	19
TestAmerica Nashville	Louisiana	NELAC	6	30613
TestAmerica Nashville	Louisiana	NELAC	6	LA110014
TestAmerica Nashville	Maryland	State Program	3	316
TestAmerica Nashville	Massachusetts	State Program	1	M-TN032
TestAmerica Nashville	Minnesota	NELAC	5	047-999-345
TestAmerica Nashville	Mississippi	State Program	4	N/A
TestAmerica Nashville	Montana (UST)	State Program	8	NA
TestAmerica Nashville	New Hampshire	NELAC	1	2963
TestAmerica Nashville	New Jersey	NELAC	2	TN965
TestAmerica Nashville	New York	NELAC	2	11342
TestAmerica Nashville	North Carolina DENR	State Program	4	387
TestAmerica Nashville	North Dakota	State Program	8	R-146
TestAmerica Nashville	Ohio VAP	State Program	5	CL0033
TestAmerica Nashville	Oklahoma	State Program	6	9412
TestAmerica Nashville	Oregon	NELAC	10	TN200001
TestAmerica Nashville	Pennsylvania	NELAC	3	68-00585
TestAmerica Nashville	Rhode Island	State Program	1	LAO00268
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	Tennessee	State Program	4	2008
TestAmerica Nashville	Texas	NELAC	6	T104704077-09-TX
TestAmerica Nashville	USDA	Federal		S-48469
TestAmerica Nashville	Utah	NELAC	8	TAN
TestAmerica Nashville	Virginia	NELAC	3	460152
TestAmerica Nashville	Virginia	State Program	3	00323
TestAmerica Nashville	Washington	State Program	10	C789
TestAmerica Nashville	West Virginia DEP	State Program	3	219
TestAmerica Nashville	Wisconsin	State Program	5	998020430
TestAmerica Nashville	Wyoming (UST)	A2LA	8	453.07

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RI

NWE1412

Cooler Received/Opened On 5/11/2012 @ 8:30

1. Tracking # 5709 (last 4 digits, FedEx

Courier: FEDEX IR Gun ID 12080142

2. Temperature of rep. sample or temp blank when opened: 3.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES...NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) IG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial)

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial)

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial)

I certify that I attached a label with the unique LIMS number to each container (intial)

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton
Nashville, TN 37204
Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

ExxonMobil

Consultant Name: Cardno ERI
Account #:
PO#:
Consultant Address: 815 Industry Drive
Invoice To: Cardno ERI c/o Ben Kortlever
Consultant City/State/Zip: Tukwila, WA 98188
Report To: Ben Kortlever
ExxonMobil Project Mgr: Jennifer Sedlachek
ERI Project #/Activity #: 03122702L
Consultant Project Mgr: Ben Kortlever
ExxonMobil Site #: Moses Lake
Major Project (AFE #): EG.2010.74500
Consultant Telephone Number: (206) 575-6220
Fax No.: (206) 575-6423
Site Address: 7810 Andrews Street NE
Sampler Name (Print): SHINGO YAMAZAKI
Site City, State, Zip: Moses Lake, WA 98837
Sampler Signature:
Oversight Agency: Washington Department of Ecology

Sample ID	Field Point Name/ Location ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify):	Analyze For: BTEX by 8021B	TPHg by NWTPH-Gx	TPHd by NWTPH-Dx	TPHmo by NWTPH-Dx	RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
S-77-B13	B13	5/7/12	845	8	X			3	3								2					X			X	X	X	X			X	
S-90-B13	B13	5/7/12	900	8	X			3	3								2					X			X	X	X	X			X	
S-100-B13	B13	5/7/12	915	8	X			3	3								2					X			X	X	X	X			X	
S-80-B14	B14	5/8/12	1600	8	X			3	3								2					X			X	X	X	X			X	
S-90-B14	B14	5/8/12	1640	8	X			3	3								2					X			X	X	X	X			X	
S-100-B14	B14	5/8/12	730	8	X			3	3								2					X			X	X	X	X			X	
				8	X			3	3								2								X	X	X	X				
				8	X			3	3								2								X	X	X	X				

NWE1412
05/25/12 23:59

Comments/Special Instructions:
PLEASE E-MAIL ALL PDF FILES TO ERI-EIMLABS@eri-us.com
Please inlude silica gel cleanup. Report results on a dry weight basis.

Laboratory Comments:
Temperature Upon Receipt: 3.4
Sample Containers Intact? Y N
VOA Vials Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ TestAmerica Project Manager or attach specific instructions

Relinquished by:		Date	Time	Received by:	Date	Time
Shingo Yamazaki		05/10/12	9:00	James Brathers	5/11/12	8:20
Relinquished by:		Date	Time	Received by (Lab personnel):	Date	Time

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Road
Nashville, TN 37204
Tel: 800-765-0980

TestAmerica Job ID: NWE1715
Client Project/Site: 31227
Client Project Description: Moses Lake

For:
Cardno Tukwila
815 Industry Drive
Tukwila, WA 98188

Attn: Ben Kortlever

Authorized for release by:
5/30/2012 4:06:26 PM

Leah R. Klingensmith
Senior Project Management
leah.klingensmith@testamericainc.com

Table of Contents

Sample Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NWE1715-01	S-80-B15	Soil	05/11/12 08:50	05/15/12 08:30
NWE1715-02	S-90-B15	Soil	05/11/12 09:10	05/15/12 08:30
NWE1715-03	S-100-B15	Soil	05/11/12 09:30	05/15/12 08:30

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Qualifiers

GC Volatiles

Qualifier	Qualifier Description
MNR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike.
Z2	Surrogate recovery was above the acceptance limits. Data not impacted.
R2	The RPD exceeded the acceptance limit.
Z1	Surrogate recovery was above acceptance limits.
M7	The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).

GC Semivolatiles

Qualifier	Qualifier Description
QP7a	The hydrocarbon pattern most closely resembles a motor oil product.
QP7	The hydrocarbon pattern most closely resembles a light petroleum product.
QP6	The contamination did not match any standards in our library.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Client Sample ID: S-80-B15
Date Collected: 05/11/12 08:50
Date Received: 05/15/12 08:30

Lab Sample ID: NWE1715-01
Matrix: Soil
Percent Solids: 82.4

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		6.47		mg/kg dry	☼	05/11/12 08:50	05/22/12 19:42	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*50 - 150*	*05/11/12 08:50*	*05/22/12 19:42*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0323		mg/kg dry	☼	05/11/12 08:50	05/22/12 19:42	50.0
Ethylbenzene	ND		0.0647		mg/kg dry	☼	05/11/12 08:50	05/22/12 19:42	50.0
Toluene	ND		0.0647		mg/kg dry	☼	05/11/12 08:50	05/22/12 19:42	50.0
Xylenes, total	ND		0.194		mg/kg dry	☼	05/11/12 08:50	05/22/12 19:42	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*50 - 150*	*05/11/12 08:50*	*05/22/12 19:42*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	ND		4.71		mg/kg dry	☼	05/22/12 07:46	05/24/12 13:41	1.00
Motor Oil	ND		4.71		mg/kg dry	☼	05/22/12 07:46	05/24/12 13:41	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*05/22/12 07:46*	*05/24/12 13:41*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	**82.4**		0.500		%		05/16/12 06:45	05/17/12 08:17	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Client Sample ID: S-90-B15
Date Collected: 05/11/12 09:10
Date Received: 05/15/12 08:30

Lab Sample ID: NWE1715-02
Matrix: Soil
Percent Solids: 78.7

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	664		23.0		mg/kg dry	☼	05/23/12 14:10	05/23/12 17:05	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/23/12 14:10*	*05/23/12 17:05*	*200*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0288		mg/kg dry	☼	05/11/12 09:10	05/22/12 20:08	50.0
Ethylbenzene	0.123		0.0576		mg/kg dry	☼	05/11/12 09:10	05/22/12 20:08	50.0
Toluene	ND		0.0576		mg/kg dry	☼	05/11/12 09:10	05/22/12 20:08	50.0
Xylenes, total	0.549		0.173		mg/kg dry	☼	05/11/12 09:10	05/22/12 20:08	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*50 - 150*	*05/11/12 09:10*	*05/22/12 20:08*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil	51.8	QP7a	4.93		mg/kg dry	☼	05/22/12 07:46	05/24/12 14:00	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*74*		*50 - 150*	*05/22/12 07:46*	*05/24/12 14:00*	*1.00*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment - RE2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	1060	QP7	49.3		mg/kg dry	☼	05/22/12 07:46	05/25/12 13:51	10.0

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	78.7		0.500		%		05/16/12 06:45	05/17/12 08:17	1.00

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Client Sample ID: S-100-B15
Date Collected: 05/11/12 09:30
Date Received: 05/15/12 08:30

Lab Sample ID: NWE1715-03
Matrix: Soil
Percent Solids: 77

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	29.7		4.57		mg/kg dry	☼	05/11/12 09:30	05/22/12 20:34	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*50 - 150*	*05/11/12 09:30*	*05/22/12 20:34*	*50.0*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0228		mg/kg dry	☼	05/11/12 09:30	05/22/12 20:34	50.0
Ethylbenzene	ND		0.0457		mg/kg dry	☼	05/11/12 09:30	05/22/12 20:34	50.0
Toluene	ND		0.0457		mg/kg dry	☼	05/11/12 09:30	05/22/12 20:34	50.0
Xylenes, total	ND		0.137		mg/kg dry	☼	05/11/12 09:30	05/22/12 20:34	50.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*50 - 150*	*05/11/12 09:30*	*05/22/12 20:34*	*50.0*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	55.8	QP7	5.04		mg/kg dry	☼	05/22/12 07:46	05/24/12 14:20	1.00
Motor Oil	19.9	QP6	5.04		mg/kg dry	☼	05/22/12 07:46	05/24/12 14:20	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*69*		*50 - 150*	*05/22/12 07:46*	*05/24/12 14:20*	*1.00*

Method: SW-846 - General Chemistry Parameters

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Dry Solids	77.0		0.500		%		05/16/12 06:45	05/17/12 08:17	1.00

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons

Lab Sample ID: 12E3403-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008584 — **Prep Batch: 12E3403_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/15/12 16:57	05/22/12 19:14	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*50 - 150*	*05/15/12 16:57*	*05/22/12 19:14*	*50.0*

Lab Sample ID: 12E3403-BS2 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008584 — **Prep Batch: 12E3403_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			1.00	0.986	MNR1	mg/kg wet		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*190*	*Z2*	*50 - 150*

Lab Sample ID: 12E5084-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008660 — **Prep Batch: 12E5084_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12) NW	ND		5.00		mg/kg wet		05/23/12 14:10	05/23/12 16:38	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*50 - 150*	*05/23/12 14:10*	*05/23/12 16:38*	*50.0*

Lab Sample ID: 12E5084-BS2 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008660 — **Prep Batch: 12E5084_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW			1.00	0.806		mg/kg wet		81	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*172*	*Z2*	*50 - 150*

Lab Sample ID: 12E5084-MS1 — **Client Sample ID: Matrix Spike**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008660 — **Prep Batch: 12E5084_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12) NW	9.14		60.0	92.9	M7	mg/kg dry	☼	140	69 - 130		

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*300*	*Z1*	*50 - 150*

Method: NWTPH-Gx - Purgeable Petroleum Hydrocarbons (Continued)

Lab Sample ID: 12E5084-MSD1 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008660 — **Prep Batch: 12E5084_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12) NW	9.14		60.0	92.2	M7	mg/kg dry	☼	138	69 - 130	0.8	10

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*308*	*Z1*	*50 - 150*

Lab Sample ID: 12E5084-DUP1 — **Client Sample ID: Duplicate**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008660 — **Prep Batch: 12E5084_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
GRO (C4-C12) NW	11.2		0.666	R2	mg/kg dry	☼	178	10

Surrogate	*Duplicate %Recovery*	*Duplicate Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*110*		*50 - 150*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B

Lab Sample ID: 12E3403-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008584 — **Prep Batch: 12E3403_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/15/12 16:57	05/22/12 19:14	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/15/12 16:57	05/22/12 19:14	50.0
Toluene	ND		0.0500		mg/kg wet		05/15/12 16:57	05/22/12 19:14	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/15/12 16:57	05/22/12 19:14	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*50 - 150*	*05/15/12 16:57*	*05/22/12 19:14*	*50.0*

Lab Sample ID: 12E3403-BS1 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008584 — **Prep Batch: 12E3403_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.0980	MNR1	mg/kg wet		98	76 - 120
Ethylbenzene	0.100	0.107	MNR1	mg/kg wet		107	77 - 120
Toluene	0.100	0.101	MNR1	mg/kg wet		101	79 - 120
Xylenes, total	0.300	0.295	MNR1	mg/kg wet		98	79 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*103*		*50 - 150*

Method: SW846 8021B - Volatile Organic Compounds by EPA Method 8021B (Continued)

Lab Sample ID: 12E5084-BLK1
Matrix: Soil
Analysis Batch: V008660

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E5084_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0250		mg/kg wet		05/23/12 14:10	05/23/12 16:38	50.0
Ethylbenzene	ND		0.0500		mg/kg wet		05/23/12 14:10	05/23/12 16:38	50.0
Toluene	ND		0.0500		mg/kg wet		05/23/12 14:10	05/23/12 16:38	50.0
Xylenes, total	ND		0.150		mg/kg wet		05/23/12 14:10	05/23/12 16:38	50.0

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*50 - 150*	*05/23/12 14:10*	*05/23/12 16:38*	*50.0*

Lab Sample ID: 12E5084-BS1
Matrix: Soil
Analysis Batch: V008660

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E5084_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.101	MNR1	mg/kg wet		101	76 - 120		
Ethylbenzene			0.100	0.109	MNR1	mg/kg wet		109	77 - 120		
Toluene			0.100	0.104	MNR1	mg/kg wet		104	79 - 120		
Xylenes, total			0.300	0.305	MNR1	mg/kg wet		102	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*94*		*50 - 150*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment

Lab Sample ID: 12E3415-BLK1
Matrix: Soil
Analysis Batch: V008720

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12E3415_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	ND		4.00		mg/kg wet		05/22/12 07:46	05/24/12 12:22	1.00
Motor Oil	ND		4.00		mg/kg wet		05/22/12 07:46	05/24/12 12:22	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*104*		*50 - 150*	*05/22/12 07:46*	*05/24/12 12:22*	*1.00*

Lab Sample ID: 12E3415-BS1
Matrix: Soil
Analysis Batch: V008720

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12E3415_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel			40.0	37.9		mg/kg wet		95	55 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*

Method: NWTPH-Dx - Extractable Petroleum Hydrocarbons with Silica Gel Treatment (Continued)

Lab Sample ID: 12E3415-MS1 — **Client Sample ID: S-80-B15**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008720 — **Prep Batch: 12E3415_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel	ND		47.8	40.5		mg/kg dry	☼	85	10 - 153		

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
o-Terphenyl	*70*		*50 - 150*

Lab Sample ID: 12E3415-MSD1 — **Client Sample ID: S-80-B15**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: V008720 — **Prep Batch: 12E3415_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel	ND		47.8	40.5		mg/kg dry	☼	85	10 - 153	0.1	50

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
o-Terphenyl	*72*		*50 - 150*

Method: SW-846 - General Chemistry Parameters

Lab Sample ID: 12E3352-DUP1 — **Client Sample ID: S-80-B15**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 12E3352 — **Prep Batch: 12E3352_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
% Dry Solids	82.4			82.7		%				0.3	20

GC Volatiles

Analysis Batch: V008584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3403-BLK1	Method Blank	Total	Soil	SW846 8021B	12E3403_P
12E3403-BLK1	Method Blank	Total	Soil	NWTPH-Gx	12E3403_P
12E3403-BS1	Lab Control Sample	Total	Soil	SW846 8021B	12E3403_P
12E3403-BS2	Lab Control Sample	Total	Soil	NWTPH-Gx	12E3403_P
NWE1715-01	S-80-B15	Total	Soil	SW846 8021B	12E3403_P
NWE1715-01	S-80-B15	Total	Soil	NWTPH-Gx	12E3403_P
NWE1715-02	S-90-B15	Total	Soil	SW846 8021B	12E3403_P
NWE1715-03	S-100-B15	Total	Soil	SW846 8021B	12E3403_P
NWE1715-03	S-100-B15	Total	Soil	NWTPH-Gx	12E3403_P

Analysis Batch: V008660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E5084-BLK1	Method Blank	Total	Soil	SW846 8021B	12E5084_P
12E5084-BLK1	Method Blank	Total	Soil	NWTPH-Gx	12E5084_P
12E5084-BS1	Lab Control Sample	Total	Soil	SW846 8021B	12E5084_P
12E5084-BS2	Lab Control Sample	Total	Soil	NWTPH-Gx	12E5084_P
12E5084-DUP1	Duplicate	Total	Soil	NWTPH-Gx	12E5084_P
12E5084-MS1	Matrix Spike	Total	Soil	NWTPH-Gx	12E5084_P
12E5084-MSD1	Matrix Spike Duplicate	Total	Soil	NWTPH-Gx	12E5084_P
NWE1715-02 - RE1	S-90-B15	Total	Soil	NWTPH-Gx	12E5084_P

Prep Batch: 12E3403_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3403-BLK1	Method Blank	Total	Soil	EPA 5035A (GC)	
12E3403-BS1	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E3403-BS2	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
NWE1715-01	S-80-B15	Total	Soil	EPA 5035A (GC)	
NWE1715-02	S-90-B15	Total	Soil	EPA 5035A (GC)	
NWE1715-03	S-100-B15	Total	Soil	EPA 5035A (GC)	

Prep Batch: 12E5084_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E5084-BLK1	Method Blank	Total	Soil	EPA 5035A (GC)	
12E5084-BS1	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E5084-BS2	Lab Control Sample	Total	Soil	EPA 5035A (GC)	
12E5084-DUP1	Duplicate	Total	Soil	EPA 5035A (GC)	
12E5084-MS1	Matrix Spike	Total	Soil	EPA 5035A (GC)	
12E5084-MSD1	Matrix Spike Duplicate	Total	Soil	EPA 5035A (GC)	
NWE1715-02 - RE1	S-90-B15	Total	Soil	EPA 5035A (GC)	

QC Association Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

GC Semivolatiles

Analysis Batch: V008720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3415-BLK1	Method Blank	Total	Soil	NWTPH-Dx	12E3415_P
12E3415-BS1	Lab Control Sample	Total	Soil	NWTPH-Dx	12E3415_P
12E3415-MS1	S-80-B15	Total	Soil	NWTPH-Dx	12E3415_P
12E3415-MSD1	S-80-B15	Total	Soil	NWTPH-Dx	12E3415_P
NWE1715-01	S-80-B15	Total	Soil	NWTPH-Dx	12E3415_P
NWE1715-02	S-90-B15	Total	Soil	NWTPH-Dx	12E3415_P
NWE1715-03	S-100-B15	Total	Soil	NWTPH-Dx	12E3415_P

Analysis Batch: V008798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
NWE1715-02 - RE2	S-90-B15	Total	Soil	NWTPH-Dx	12E3415_P

Prep Batch: 12E3415_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3415-BLK1	Method Blank	Total	Soil	EPA 3550B	
12E3415-BS1	Lab Control Sample	Total	Soil	EPA 3550B	
12E3415-MS1	S-80-B15	Total	Soil	EPA 3550B	
12E3415-MSD1	S-80-B15	Total	Soil	EPA 3550B	
NWE1715-01	S-80-B15	Total	Soil	EPA 3550B	
NWE1715-02	S-90-B15	Total	Soil	EPA 3550B	
NWE1715-02 - RE2	S-90-B15	Total	Soil	EPA 3550B	
NWE1715-03	S-100-B15	Total	Soil	EPA 3550B	

Extractions

Analysis Batch: 12E3352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3352-DUP1	S-80-B15	Total	Soil	SW-846	12E3352_P
NWE1715-01	S-80-B15	Total	Soil	SW-846	12E3352_P
NWE1715-02	S-90-B15	Total	Soil	SW-846	12E3352_P
NWE1715-03	S-100-B15	Total	Soil	SW-846	12E3352_P

Prep Batch: 12E3352_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12E3352-DUP1	S-80-B15	Total	Soil	% Solids	
NWE1715-01	S-80-B15	Total	Soil	% Solids	
NWE1715-02	S-90-B15	Total	Soil	% Solids	
NWE1715-03	S-100-B15	Total	Soil	% Solids	

Lab Chronicle

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Client Sample ID: S-80-B15

Lab Sample ID: NWE1715-01

Date Collected: 05/11/12 08:50
Matrix: Soil
Date Received: 05/15/12 08:30
Percent Solids: 82.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		1.07	12E3403_P	05/11/12 08:50	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008584	05/22/12 19:42	AMC	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008584	05/22/12 19:42	AMC	TAL NSH
Total	Prep	EPA 3550B		0.971	12E3415_P	05/22/12 07:46	JJR	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008720	05/24/12 13:41	JLF	TAL NSH
Total	Prep	% Solids		1.00	12E3352_P	05/16/12 06:45	KDJ	TAL NSH
Total	Analysis	SW-846		1.00	12E3352	05/17/12 08:17	KDJ	TAL NSH

Client Sample ID: S-90-B15

Lab Sample ID: NWE1715-02

Date Collected: 05/11/12 09:10
Matrix: Soil
Date Received: 05/15/12 08:30
Percent Solids: 78.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.906	12E3403_P	05/11/12 09:10	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008584	05/22/12 20:08	AMC	TAL NSH
Total	Prep	EPA 5035A (GC)	RE1	0.906	12E5084_P	05/23/12 14:10	AAN	TAL NSH
Total	Analysis	NWTPH-Gx	RE1	200	V008660	05/23/12 17:05	AMC	TAL NSH
Total	Prep	EPA 3550B		0.969	12E3415_P	05/22/12 07:46	JJR	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008720	05/24/12 14:00	JLF	TAL NSH
Total	Prep	EPA 3550B	RE2	0.969	12E3415_P	05/22/12 07:46	JJR	TAL NSH
Total	Analysis	NWTPH-Dx	RE2	10.0	V008798	05/25/12 13:51	KKH	TAL NSH
Total	Prep	% Solids		1.00	12E3352_P	05/16/12 06:45	KDJ	TAL NSH
Total	Analysis	SW-846		1.00	12E3352	05/17/12 08:17	KDJ	TAL NSH

Client Sample ID: S-100-B15

Lab Sample ID: NWE1715-03

Date Collected: 05/11/12 09:30
Matrix: Soil
Date Received: 05/15/12 08:30
Percent Solids: 77

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5035A (GC)		0.703	12E3403_P	05/11/12 09:30	AAN	TAL NSH
Total	Analysis	SW846 8021B		50.0	V008584	05/22/12 20:34	AMC	TAL NSH
Total	Analysis	NWTPH-Gx		50.0	V008584	05/22/12 20:34	AMC	TAL NSH
Total	Prep	EPA 3550B		0.971	12E3415_P	05/22/12 07:46	JJR	TAL NSH
Total	Analysis	NWTPH-Dx		1.00	V008720	05/24/12 14:20	JLF	TAL NSH
Total	Prep	% Solids		1.00	12E3352_P	05/16/12 06:45	KDJ	TAL NSH
Total	Analysis	SW-846		1.00	12E3352	05/17/12 08:17	KDJ	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Method Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Method	Method Description	Protocol	Laboratory
SW-846	General Chemistry Parameters		TAL NSH
NWTPH-Gx	Purgeable Petroleum Hydrocarbons		TAL NSH
SW846 8021B	Volatile Organic Compounds by EPA Method 8021B		TAL NSH
NWTPH-Dx	Extractable Petroleum Hydrocarbons with Silica Gel Treatment		TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

Certification Summary

Client: Cardno Tukwila
Project/Site: 31227

TestAmerica Job ID: NWE1715

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Nashville		ACIL		393
TestAmerica Nashville	A2LA	ISO/IEC 17025		0453.07
TestAmerica Nashville	Alabama	State Program	4	41150
TestAmerica Nashville	Alaska (UST)	State Program	10	UST-087
TestAmerica Nashville	Arizona	State Program	9	AZ0473
TestAmerica Nashville	Arkansas DEQ	State Program	6	88-0737
TestAmerica Nashville	California	NELAC	9	1168CA
TestAmerica Nashville	Canadian Assoc Lab Accred (CALA)	Canada		3744
TestAmerica Nashville	Colorado	State Program	8	N/A
TestAmerica Nashville	Connecticut	State Program	1	PH-0220
TestAmerica Nashville	Florida	NELAC	4	E87358
TestAmerica Nashville	Illinois	NELAC	5	200010
TestAmerica Nashville	Iowa	State Program	7	131
TestAmerica Nashville	Kansas	NELAC	7	E-10229
TestAmerica Nashville	Kentucky	State Program	4	90038
TestAmerica Nashville	Kentucky (UST)	State Program	4	19
TestAmerica Nashville	Louisiana	NELAC	6	30613
TestAmerica Nashville	Louisiana	NELAC	6	LA110014
TestAmerica Nashville	Maryland	State Program	3	316
TestAmerica Nashville	Massachusetts	State Program	1	M-TN032
TestAmerica Nashville	Minnesota	NELAC	5	047-999-345
TestAmerica Nashville	Mississippi	State Program	4	N/A
TestAmerica Nashville	Montana (UST)	State Program	8	NA
TestAmerica Nashville	New Hampshire	NELAC	1	2963
TestAmerica Nashville	New Jersey	NELAC	2	TN965
TestAmerica Nashville	New York	NELAC	2	11342
TestAmerica Nashville	North Carolina DENR	State Program	4	387
TestAmerica Nashville	North Dakota	State Program	8	R-146
TestAmerica Nashville	Ohio VAP	State Program	5	CL0033
TestAmerica Nashville	Oklahoma	State Program	6	9412
TestAmerica Nashville	Oregon	NELAC	10	TN200001
TestAmerica Nashville	Pennsylvania	NELAC	3	68-00585
TestAmerica Nashville	Rhode Island	State Program	1	LAO00268
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	South Carolina	State Program	4	84009
TestAmerica Nashville	Tennessee	State Program	4	2008
TestAmerica Nashville	Texas	NELAC	6	T104704077-09-TX
TestAmerica Nashville	USDA	Federal		S-48469
TestAmerica Nashville	Utah	NELAC	8	TAN
TestAmerica Nashville	Virginia	NELAC	3	460152
TestAmerica Nashville	Virginia	State Program	3	00323
TestAmerica Nashville	Washington	State Program	10	C789
TestAmerica Nashville	West Virginia DEP	State Program	3	219
TestAmerica Nashville	Wisconsin	State Program	5	998020430
TestAmerica Nashville	Wyoming (UST)	A2LA	8	453.07

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECI

NWE1715

Cooler Received/Opened On 5/15/2012 @ 8:30

1. Tracking # 5731 (last 4 digits, FedEx)

Courier: FEDEX IR Gun ID 17960357

2. Temperature of rep. sample or temp blank when opened: 4.3 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES...NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) JB

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? (YES)...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA) Sol

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...(NO) Was a PIPE generated? YES...(NO)...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 6/24/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

ExxonMobil

NWE1715
05/30/12 23:59

Consultant Name: Cardno ERI
Account #:
PO#:
Consultant Address: 815 Industry Drive
Invoice To: Cardno ERI c/o Ben Kortlever
Consultant City/State/Zip: Tukwila, WA 98188
Report To: Ben Kortlever
ExxonMobil Project Mgr: Jennifer Sedlachek
ERI Project #/Activity #: 03122702L
Consultant Project Mgr: Ben Kortlever
ExxonMobil Site #: Moses Lake
Major Project (AFE #): EG.2010.74500
Consultant Telephone Number: (206) 575-6220
Fax No.: (206) 575-6423
Site Address: 7810 Andrews Street NE
Sampler Name (Print): SHIGO YAMAZAKI
Site City, State, Zip: Moses Lake, WA 98837
Sampler Signature:
Oversight Agency: Washington Department of Ecology

Sample ID	Field Point Name/ Location ID	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify):	Analyze For: BTEX by 8021B	TPHg by NWTPH-Gx	TPHd by NWTPH-Dx	TPHmo by NWTPH-Dx						RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report	
S-80-BIS	BIS	05/11/12	850	8	X			3	3								2					X			X	X	X	X								X		-1
S-90-BIS	BIS	05/11/12	910	8	X			3	3								2					X			X	X	X	X								X		-2
S-100-BIS	BIS	05/11/12	930	8	X			3	3								2					X			X	X	X	X								X		-3

Comments/Special Instructions:

PLEASE E-MAIL ALL PDF FILES TO
ERI-EIMLABS@eri-us.com

Please inlude silica gel cleanup. Report results on a dry weight basis.

Laboratory Comments:
Temperature Upon Receipt: 4.3°c
Sample Containers Intact? Y N
VOA Vials Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ TestAmerica Project Manager or attach specific instructions

Relinquished by:		Date	Time	Received by:	Date	Time
		05/14/12	0800		5/15/12	0830
Relinquished by:		Date	Time	Received by (Lab personnel):	Date	Time

5/30/2012

Appendix D

Waste Documentation

Certificate of Disposal / Treatment - Storage and Transfer

Run Date: 7/20/2012

Manifested To Site: Grassy Mountain, UT Facility
3 Miles East 7 Miles North of KnollsExit 41 off I-80
Grantsville, UT 84029

EPA ID/Prov ID: UTD991301748

Manifest No.	Generation Date	Received Date
NONHAZ39054	7/12/2012	7/18/2012

The above described waste, received at the Clean Harbors facility listed above pursuant to the manifest(s) listed above, has/will be treated and/or disposed of by Clean Harbors, or another licensed facility approved by Clean Harbors, in accordance with applicable federal, state and provincial laws and regulations. Any waste received by Clean Harbors and subsequently shipped to another licensed facility has been or shall be identified as being generated by Clean Harbors in accordance with 40CFR 264.71(c).

For waste imported/exported to/from Canada the waste has/will be disposed or recycled according to the Canadian export and import of hazardous waste or hazardous recyclable material regulation as published in the Canadian Gazette Part II, vol 139, No 11, SOR/2005-149 May 17, 2005

Under civil and criminal penalties of law for the making of submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signed: Paul A. Mills **Date:** **7/20/2012**

Title: **Director Facility Applications**

Certificate of Disposal / Treatment - Storage and Transfer

Run Date: 7/2/2012

Manifested To Site: Grassy Mountain, UT Facility
3 Miles East 7 Miles North of KnollsExit 41 off I-80
Grantsville, UT 84029

EPA ID/Prov ID: UTD991301748

Manifest No.	Generation Date	Received Date
NONHAZ52701	6/14/2012	7/2/2012

The above described waste, received at the Clean Harbors facility listed above pursuant to the manifest(s) listed above, has/will be treated and/or disposed of by Clean Harbors, or another licensed facility approved by Clean Harbors, in accordance with applicable federal, state and provincial laws and regulations. Any waste received by Clean Harbors and subsequently shipped to another licensed facility has been or shall be identified as being generated by Clean Harbors in accordance with 40CFR 264.71(c).

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Signed: Paul A. Mills **Date:** 7/2/2012

Title: Director Facility Applications