SCS ENGINEERS

2015 Annual Monitoring Report

Remedial Action at the Hansville Landfill

Kitsap County, WA

Presented to:

KITSAP COUNTY/
WASTE MANAGEMEMENT OF WASHINGTON, INC

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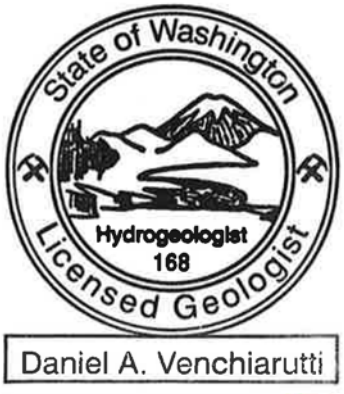

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ACRONYMS

bgs	below ground surface
CAP	Cleanup Action Plan
CDL	construction, demolition, and land clearing wastes
CH4	methane
CMP	Compliance Monitoring Plan
CO2	carbon dioxide
COCs	contaminants of concern
COD	chemical oxygen demand
County	Kitsap County
Ecology	Washington State Department of Ecology
Eh	oxidation-reduction potential/redox
ft	feet
ft-msl	feet above mean sea level
GP	gas probe
HDPE	high density polyethylene
KCSL	Kitsap County Sanitary Landfill
KPHD	Kitsap Public Health District
Landfill	Hansville Landfill solid waste disposal area, the demolition waste disposal area, and the septage disposal area located on the Landfill Property
LEL	lower explosive limit
LFG	landfill gas
Landfill Property	Total area and facilities encompassed by the Hansville Landfill property boundary
LCL	lower confidence limit
mg/L	milligrams per liter
µg/L	micrograms per liter
msl	mean sea level
MCL	maximum contaminant level
MDL	method detection limit
MRL	method reporting limit
MTCA	Model Toxics Control Act
MW	groundwater monitoring well
NA	not applicable
ND	non-detect
NM	not measured
O&M	operation and maintenance
O2	oxygen
PCL	preliminary cleanup level
PVC	polyvinyl chloride

QAP	Quality Assurance Plan
QA/QC	Quality Assurance/Quality Control
RCW	Revised Code of Washington
RFQ	Request for Qualifications
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
scfm	standard cubic feet per minute
SCL	Site Cleanup Level
SCS	SCS Engineers
SEPA	State Environmental Policy Act
SHA	Site Hazard Assessment
SIM	Selected ion monitoring
Site	Landfill Property boundary plus the extent of groundwater and surface water contamination impacts from the Landfill on Port Gamble S'Klallam Tribal property
SW	surface water monitoring stations
TOC	total organic carbon
TSS	total suspended solids
UCL	upper confidence limit
VOCs	volatile organic compounds
WAC	Washington Administrative Code
WMW	Waste Management of Washington, Inc.

1.0 INTRODUCTION

This annual summary report describes the results of quarterly environmental monitoring (groundwater, surface water, and landfill gas) conducted at the Hansville Landfill Site during 2015. The landfill monitoring was conducted on behalf of Kitsap County (the County) and Waste Management of Washington, Inc. (WMW). Groundwater and surface water were sampled quarterly during January, April, July, and October. Landfill gas (LFG) measurements were also recorded on a quarterly basis.

Site monitoring activities completed during the 2015 reporting period were performed in accordance with the final Cleanup Action Plan (CAP) for the Hansville Landfill. The CAP, which was approved in August 2011, is the central component of the Amended Consent Decree (No. 95-2-03005-1) that was formally executed on August 5, 2011. The environmental sampling, data management, and reporting required under the final CAP is documented in *Compliance Monitoring Plan, with Sampling & Analysis Plan (SAP) and Quality Assurance Plan (QAP), Remedial Action at the Hansville Landfill, Kitsap County, WA (*SCS Engineers, dated September 2011).

1.1 REGULATORY FRAMEWORK

The Hansville Landfill is a former municipal landfill that stopped accepting waste and officially closed in 1989. The closure met the requirements of Chapter 173-304 Washington Administrative Code (WAC). The closure consisted of final site grading, surface capping (including the installation of a high-density polyethylene [HDPE] liner over three distinct disposal areas), and the installation of surface water controls. A passive LFG collection system, including horizontal piping installed beneath the HDPE liner and a flaring station, was also constructed at this time. In 1991, an active LFG extraction and flaring system was installed within the municipal solid waste and demolition landfill units to better control methane migration and the removal of volatile organic compounds (VOCs) from subsurface soil and groundwater.

Also, in 1991, the Washington Department of Ecology (Ecology) performed a Site Hazard Assessment (SHA) under the Model Toxics Control Act (MTCA) Regulations which resulted in an initial ranking of 3. This ranking was subsequently changed to a 1 (the highest rank on a scale of 1 to 5) in 1992, based on changes in the state ranking model. Throughout this period, Kitsap County Sanitary Landfill (KCSL, which merged into WMW) conducted additional investigations, continued environmental monitoring, and implemented additional improvements at the Site as part of a corrective action program.

In October 1995, Ecology signed a consent decree with the County and KCSL to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Site. The RI was completed in 2007 and the FS was completed in 2009. The RI/FS identified arsenic and vinyl chloride in groundwater (and in seepage to surface water) as the primary contaminants of concern (COCs) related to the landfill. The highest concentrations of these COCs generally occur adjacent to the waste disposal areas with decreasing concentrations at increasing distances from the landfill.

Based on these findings, site-specific cleanup levels were developed for arsenic, vinyl chloride and manganese in groundwater, and arsenic and vinyl chloride in surface water.

A preferred remedial alternative of Natural Attenuation of Groundwater with Enhanced Monitoring and Institutional Controls was selected for implementation at the Hansville Landfill Site. The CAP was specifically developed to implement the selected remedy. Along with a restrictive covenant for the Landfill Property, the CAP was incorporated into the Amended Consent Decree executed on August 5, 2011. A Compliance Monitoring Plan (CMP), including a MTCA compliant SAP and QAP, was prepared by SCS in September 2011 to document the revised monitoring program to be executed under the CAP. Compliance monitoring under the CAP was initiated during the fourth quarter of 2011 and continues through the present time.

1.2 REPORT CONTENTS

This report includes:

- Site description and background sections. Figure 1 shows the Landfill Property location (Appendix A).
- A summary of the 2015 groundwater and surface water monitoring activities, including water level measurements and sample collection and analysis techniques. Figure 2 illustrates the locations of the groundwater monitoring wells and surface water sampling stations on the Site (Appendix A).
- Summary data tables of the fourth quarter 2015 water quality monitoring results including water table elevations, analytical data, and a contour map depicting groundwater elevations and flow directions for the quarter (Appendix B).
- Summary data tables and groundwater contour maps, previously reported, for the preceding three quarters of 2015 (Appendix C).
- An evaluation of water quality results, including comparisons to regulatory standards, tracking natural attenuation parameters, and statistical analysis (Appendix D), as defined under the CAP.
- A presentation of the fourth quarter 2015 LFG monitoring results, including a summary table for the reporting period (Appendix B). Figure 3 illustrates the layout of the LFG system and monitoring probe locations (Appendix A).
- Summary LFG data tables, previously reported, for the preceding three quarters of 2015 (Appendix C).
- Field report forms and laboratory analytical reports (including data validation summaries) for the fourth quarter 2015 (Appendices E and F, respectively).
- Copies of landfill inspection reports prepared by the Kitsap Public Health District (KPHD) (Appendix G).

All terms used in this report are consistent with those defined in the Consent Decree as well as in Revised Code of Washington (RCW) 70.1050.020 and WAC 173-340-200.

2.0 SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The Site subject to the CAP and subject to the monitoring described in this report contains the Landfill, the Landfill Property, and a portion of land owned by the Port Gamble S'Klallam Tribe. The closed Hansville Landfill is located on an approximately 73-acre parcel within the northeast quarter of Section 9, Township 27 North, Range 2 East of the Willamette Meridian, in Kitsap County, Washington. It consists of three separate, inactive, disposal areas. These include the following:

- 13-acre municipal solid waste disposal cell situated within the central portion of the property;
- 4-acre demolition disposal cell situated on the northeast corner of the property, which accepted construction, demolition, and land clearing wastes (CDL); and
- 1/3-acre septage lagoon located immediately southwest of the demolition disposal area, which accepted residential septic tank waste until 1982. A second septage disposal area was also reportedly located near the northeast corner of the demolition disposal area.

The Site lies approximately five miles south of the unincorporated community of Hansville on the northernmost reach of the Kitsap Peninsula and is situated on the upper portions of several west sloping drainages with perennial creeks that ultimately discharge into Port Gamble Bay. The topography ranges between 310 and 390 feet above mean sea level (msl). A Landfill Property location map is provided as Figure 1 (Appendix A).

The County owns the Landfill Property and currently operates a drop box, known as a recycling and garbage facility in Kitsap County, on the eastern end. This portion of the property has been used for solid waste transfer and/or recycling operations since the landfill ceased accepting refuse in 1989. The remaining portions of the Landfill Property are largely comprised of a soil borrow area and wooded land. As previously mentioned, the landfill was active between approximately 1962 and 1989. Prior to development of the landfill, the property was undeveloped forested land.

The property is bordered to the south and west by lands owned by the Port Gamble S'Klallam Tribe. Tribal lands in the immediate vicinity of the Landfill Property principally consist of woodland and recreational land, with scattered commercial (a tribal casino) and rural residential development further to the south and southwest. Surrounding areas to the north and east of the Landfill Property are zoned low-density residential, rural woodland, or light industrial, and are sparsely developed. The area directly east of the Landfill Property has been recently cleared and is reportedly under development for light industrial use. The nearest permanent residence is located approximately 1,500 feet (ft) east of the solid waste disposal area.

As part of the landfill closure activities, the three disposal areas were capped, a LFG extraction/flaring system was installed, and surface water drainage controls were implemented. The passive LFG extraction system was upgraded in 1991 to an active system that includes

interior LFG extraction wells and trenches (installed in refuse), perimeter gas extraction wells located in native soil adjacent to the solid waste disposal area, a condensate collection system, and a fenced blower/flare facility. A series of seven LFG monitoring probes are also located in the vicinity of the property borders to monitor for potential offsite methane migration. The surface water drainage control system controls storm water flow and minimizes erosion and offsite migration of sediment-bearing water. Drainage and erosion protection improvements include hydroseeding, culverts, and drainage ditches.

2.2 LOCAL AND REGIONAL HYDROGEOLOGY

The regional near-surface geology in the vicinity of the Hansville Landfill is dominated by glacio-fluvial and glacio-lacustrine deposits associated with the Vashon glaciation. The RI (Parametrix, 2007) identifies the following main stratigraphic units at the site (from ground surface downward):

- Sand - This unit was reported in all the investigative borings from the ground surface to depths ranging from 62 to 142 feet below ground surface (bgs). The sand deposit consists primarily of poorly graded, fine- and medium-grained sand with trace amounts of silt and gravel. The material is dark yellowish brown to dark gray in color, dense to very dense, and dry to saturated. The RI references the sand unit as the upper aquifer. This unit has been interpreted as outwash associated within the Vashon Drift.

- Transition Zone - This zone was reported at three boring locations (MW-8, MW-9, and MW-14) and is approximately 15 feet thick. It consists of interbedded layers of sand, silty sand, and silt and does not appear to be areally extensive.

- Silt - This unit was reported in all the soil borings advanced through the upper aquifer. It occurred at depths ranging from approximately 66 feet bgs (at MW-9) to 163 feet bgs (at MW-14). The silt is dark gray, slightly to moderately plastic, very dense, and dry. This unit has been interpreted to be the Kitsap Formation.

Groundwater in the immediate vicinity of the landfill has been reported to occur within the upper aquifer at depths ranging between 41 feet bgs (at MW-1) to 104 feet bgs (at MW-5). The water table beneath the landfill was reported to range between 251 and 271 feet above msl. To the west (downgradient) of the landfill, groundwater within the upper aquifer reportedly occurred between 7 feet bgs (at MW-12I) and 45 feet bgs (at MW-8). The corresponding water table elevations recorded in these wells has historically ranged from approximately 238 to 260 feet above msl.

Groundwater flow in the upper aquifer in the vicinity of the Hansville Landfill has been consistently reported to be towards the west-southwest. The 2007 RI noted that groundwater from the upper aquifer discharges into the headwaters of several perennial creeks west (downgradient) of the landfill. These creeks reportedly include Little Boston Creek, Creek A, Creek B, Creek C, and Middle Creek. Within the deeper hydrologic unit, the dense silts reported for the Kitsap Formation have a relatively low hydraulic conductivity, restricting vertical movement of groundwater through the formation.

2.3 HISTORY OF LANDFILL COMPLIANCE MONITORING

2.3.1 Water Quality

Groundwater monitoring was initiated at the site in 1982 with the installation of three groundwater monitoring wells (MW-1 through MW-3). Three additional groundwater monitoring wells (MW-4 though MW-6) were added to the monitoring program in 1988. Beginning in 1996, more groundwater wells were installed as part of a phased RI including wells MW-7 through MW-12 during Phase I, and five additional wells (MW-8D, MW-12I, MW-13S, MW-13D, and MW-14) during Phase II.

Monitoring of surface water commenced in 1991 at two locations on Middle Creek (SW-1 and SW-2). Two additional locations (SW-SB and SW-3) were added in 1992 and 1994, respectively. Seven new surface water sampling locations (SW-4, SW-5, SW-6, SW-7, SW-8, SW-9, and SW-10) were subsequently established during the 1996 RI.

Four comprehensive quarterly RI sampling events for groundwater and surface water were conducted between August 1996 and June 1997. Ecology-directed quarterly monitoring was initiated in March 1998 using a subset of the groundwater and surface water locations established during the RI. In the first quarter of 2000, Ecology approved further streamlining of the monitoring program, which remained largely unchanged through the third quarter of 2011. The streamlined monitoring program included:

- Quarterly sampling of six (6) groundwater monitoring wells (MW-5, MW-6, MW-7, MW-12I, MW-13D and MW-14). The groundwater parameter suite included: alkalinity, ammonia, bicarbonate, carbonate, chloride, chemical oxygen demand (COD), hydroxide (alkalinity), nitrate, nitrite, sulfate, total organic carbon (TOC), total coliform, dissolved metals (calcium, copper, iron, lead, magnesium, manganese, potassium, sodium and low-level arsenic), and vinyl chloride by selected ion monitoring (SIM). Annual sampling and analysis is also conducted for the complete EPA 8260 VOCs suite.
- Quarterly sampling of five (5) surface water monitoring stations (SW-1, SW-4, SW-6, SW-7 and SW-10). The surface water parameter suite included all the groundwater parameters (except that fecal coliform replaced total coliform analysis), as well as total suspended solids (TSS), turbidity and hardness.

Beginning with the fourth quarter 2011 sampling event, the water quality monitoring program was further modified to comply with the final CAP developed for the site. As detailed in Section 2.4, the CAP-defined water quality monitoring program includes quarterly monitoring of six (6) groundwater compliance wells and four (4) surface water sampling stations.

2.3.2 Landfill Gas

Closure construction was completed at the landfill in 1990, including the installation of a passive LFG collection system. The passive LFG collection system in the solid waste disposal areas was subsequently converted to an active extraction and flaring system in 1991. Additional modifications to the LFG system were completed in 1994 to separate the perimeter LFG

extraction well flow from the in-refuse LFG extraction well and trench flow. The perimeter LFG extraction system ceased operation in 1995 (Parametrix, 2011).

The LFG control system layout is shown on Figure 3 (Appendix A). Four perimeter probes (GP-1 through GP-4) were initially installed on the property in 1990 to monitor LFG migration. An additional LFG migration probe (GP-5) was subsequently installed in 1994. The probes were placed in the native soils around the perimeter of the property to a depth approximately equal to the depth of refuse. All probes are single-completion except GP-2, which is a triple-completion probe screened within a shallow, middle, and deeper zone. Monitoring frequency for LFG was increased to quarterly in 1987 and monthly in 1991.

Two additional LFG probes (GP-6 and GP-7) were installed for the RI in 1996. Probe GP-6 was installed on the northeastern corner of the landfill near the demolition disposal area. Probe GP-7 was installed adjacent to groundwater monitoring well MW-9 southwest of the solid waste disposal area on Tribal land. These probes were constructed as single-completions and are screened in the soil column above the saturated zone of the upper aquifer (Parametrix 2007).

A downsized flare was installed in 2003 to handle the decreased volume of LFG generated at the landfill. In November 2006, system piping was upgraded from aboveground polyvinyl chloride (PVC) to below ground high density polyethylene (HDPE) pipe within the solid waste disposal area and demolition footprint areas. During November 2013, the primary and backup blowers were replaced with a pair of new, 1.0 horsepower, high-efficiency blowers to improve the performance of the LFG system. Additional upgrades were completed during December 2014 at five LFG extraction wellheads (R-3, R-6, R11, R-12 and T-7) which included the installation of improved orifice plates and sampling ports.

Routine LFG monitoring includes field measurements for methane gas, oxygen gas, carbon dioxide gas, and pressure at 21 extraction well/trench ports, 2 blower/flare ports, and the 7 perimeter gas probes. The final CAP, which was implemented during the final quarter of 2011, requires that quarterly LFG monitoring be performed at these locations.

2.4 CURRENT MONITORING PROGRAM UNDER THE SITE REMEDY

Beginning with the fourth quarter of 2011, the compliance monitoring program for the Hansville Landfill Site transitioned to that outlined in the final CAP. As previously noted, the CAP identified arsenic and vinyl chloride in groundwater and surface water as the primary COCs. Manganese was also identified as an additional COC. The table below summarizes the final site-specific cleanup levels that have been established for the site.

FINAL SITE CLEANUP LEVELS – HANSVILLE LANDFILL REMEDY [1]			
Chemical	**Media**	**Site Cleanup Level (µg/L)**	**Origin of Cleanup Level**
Vinyl chloride	Groundwater	0.025	EPA Human Health, 2004
Arsenic		5	Background
Manganese		2,240	Method B Formula Value
Vinyl chloride	Surface Water	0.025	EPA Human Health, 2004
Arsenic		5	Background

[1] As referenced in Section 5.3 in the June 2011 Cleanup Action Plan.

The groundwater, surface water and LFG monitoring networks present at the closed Hansville Landfill are as follows:

- Groundwater: One (1) upgradient monitoring well (MW-5) and five (5) downgradient monitoring wells (MW-6, MW-7, MW-12I, MW-13D and MW-14).
- Surface Water: Four (4) monitoring stations (SW-1, SW-4, SW-6 and SW-7).
- Landfill Gas: Twenty-one (21) LFG extraction well/trench ports, two (2) blower/flare ports, and seven (7) perimeter LFG probes (GP-1 through GP-7, with GP-2 being a triple completion).

Under the final CAP, the following water quality parameters are included in the quarterly analysis for both groundwater and surface water: arsenic, manganese, chloride, ammonia, nitrate, nitrite, bicarbonate, carbonate, alkalinity, sulfate, TOC, orthophosphate, and vinyl chloride (by SIM). A full EPA method 8260 scan for VOCs is also conducted annually. Quarterly LFG field measurements continue to include methane gas, oxygen gas, and carbon dioxide gas (by percent volume), as well as gas flow, pressure and temperature.

It should be noted that Ecology is scheduled to initiate a five year review of the Hansville Landfill MTCA remedy defined under the 2011 Amended Consent Decree during the summer/fall of 2016. Consistent with Section XXVI of the Amended Consent Decree, a Remedial Action Status Report will be prepared for submittal to Ecology prior to the agency's five-year MTCA review. This report will document the effectiveness of the Hansville Landfill site remedy using the factors set forth under WAC 173-340-420(4), and will provide recommendations regarding remedy optimization.

3.0 2015 GROUNDWATER AND SURFACE WATER MONITORING

Water quality monitoring for groundwater and surface water was conducted at the Hansville Landfill Site by SCS on January 21st and 22nd, April 16th, July 8th and 9th, and October 21st, 2015. Dual sampling crews were utilized for the April and October events, which permitted the water quality monitoring activities to be completed during the course of a single field day. During the remaining quarters, water quality monitoring was completed by a single field sampler over a two day period.

Consistent with the procedures detailed in the Compliance Monitoring Plan (SCS 2011), six groundwater monitoring wells (MW-5, MW-6, MW-7, MW-12I, MW-13D, and MW-14) were purged and sampled utilizing low-flow/low-volume collection techniques using dedicated Grundfos submersible electric pumps. Prior to initiating purging activities, an electronic water level meter was deployed to record depth to water measurements at each well location. Stabilization during purging and sampling was documented through field measurement of pH, specific conductivity, dissolved oxygen, oxidation-reduction potential/redox (Eh) and temperature. Samples tested for dissolved metals were field-filtered through a 0.45-micron filter. A field duplicate was collected during each monitoring event.

Surface water samples (SW-1, SW-4, SW-6 and SW-7) were collected directly from the surface flow into laboratory-provided containers. Samples to be tested for dissolved metals were field-filtered through a 0.45-micron filter. Surface water samples were tested in the field for pH, specific conductivity, dissolved oxygen, oxidation-reduction potential/redox (Eh) and temperature. It should be noted that during July 2014, surface water station SW-7 was permanently relocated approximately 1,200 feet downslope of its original location due to unstable slopes and downed woody debris restricting safe access. The relocation of the SW-7 monitoring station to a safer location (depicted on Figure 2) was approved by Ecology and the KPHD in August 2014.

All water quality samples were submitted to TestAmerica, Inc. (Denver, Colorado) for chemical analysis, except for low-level dissolved arsenic, which were sent to Analytical Resources, Inc. in Tukwila, Washington. Groundwater and surface water samples collected during the 2015 quarterly monitoring events were analyzed for the CAP-defined parameter suite previously detailed in Section 2.4. The full suite of VOCs was analyzed as part of the January 2015 quarterly event. Analytical results for the fourth quarter 2015 event are tabulated in Appendix B. Summary data tables for the three preceding 2015 monitoring quarters, which have been previously reported, are attached in Appendix C.

A quality assurance/quality control (QA/QC) evaluation of the laboratory data was conducted for each quarterly event. The QA/QC evaluation included evaluating data for completeness, and reviewing the data package for holding times, method blanks, trip blanks, laboratory control samples, laboratory duplicates, and matrix spike/matrix spike duplicates. With the exception of a holding time delay noted for the second quarter pH results, no significant data quality issues were identified for the 2015 analytical data set. These pH data were qualified due to the failure of a field meter during the April field event. The pH results reported for this event were

measured by the analytical laboratory on the day following sample collection. Where appropriate, data qualifiers have been appended to the reported results, as noted on each summary data table.

Standard analytical protocols were followed in the analysis of the samples, and laboratory quality control samples analyzed in conjunction with the samples in this project remained within established control limits. Limitations are stated and clearly identified in the report where applicable. Based on this review, all the 2015 analytical data were found to be acceptable as reported by the laboratory for the intended use in this project.

3.1 WATER QUALITY RESULTS

3.1.1 Groundwater Elevations

Depth to groundwater measurements and calculated water table elevations for the fourth quarter 2015 monitoring event are presented in Table 1 (Appendix B). A potentiometric surface map illustrating groundwater flow across the Site on October 21st, 2015 is presented as Figure 4 (Appendix B). Tabulated groundwater data and groundwater contour maps previously reported for the first three quarters of the 2015 monitoring year are attached in Appendix C.

Water table elevations measured over the current reporting period remained generally stable, ranging between 237.25 feet msl (MW-12I in July) to 267.50 feet msl (MW-5 in October). An anomalously low water table elevation recorded at well MW-12I (215.64 feet msl in January) is suspected to have resulted from either a field equipment malfunction or a measurement error. Excepting this anomalous measurement, the annual range of water table elevations recorded during 2015 remained consistent with the past several year's monitoring results (SCS 2011 through 2014 and Parametrix 2010), and continue to indicate that groundwater in the upper aquifer flows to the west and southwest and discharges to the headwaters of creeks downgradient of the landfill.

3.1.2 Groundwater Quality

Chemicals of Concerns

Downgradient well MW-14 was the only location where arsenic concentrations were reported above this parameter's 0.005 mg/L site-specific groundwater cleanup level during the 2015 compliance period. The reported concentrations in this well ranged between 0.0146 mg/L (in October) and 0.0177 mg/L (in January). Low, but detectable, levels of arsenic (ranging from 0.00087 mg/L at MW-7 in July to 0.0038 mg/L at MW-13D in October) were consistently reported during all four quarters in the remaining groundwater wells. Time-series diagrams for arsenic in groundwater are provided in Appendix D.

During 2015, MW-14 remained the only monitoring well where manganese routinely exceeded its 2.24 mg/L site-specific groundwater cleanup level. The reported exceedances ranged between 2.5 mg/L (in October) to 2.7 mg/L (in April). As noted for previous monitoring years, the highest manganese concentrations were generally observed in those wells (MW-6 and MW-14) situated immediately downgradient of the solid waste landfill.

Vinyl chloride exceeded its 0.025 µg/L site-specific groundwater cleanup level in three wells during the 2015 reporting period. These exceedances were detected in MW-6 (ranging from 0.14 µg/L in October to 0.27 µg/L in July), MW-12I (ranging from 0.083 µg/L in April to 0.39 µg/L in October and MW-14 (ranging from 0.13 µg/L in October to 0.21 µg/L in April). With the exception of the 0.39 µg/L detection in MW-12I, vinyl chloride concentrations were lower in October than during the three preceding quarters. A full EPA 8260 analysis conducted during the January 2015 event reported sporadic, low-level detections of four additional VOCs, including chlorodifluromethane, 1,2-dichloroethane, cis-1,2-dichloroethene and ethyl ether in the groundwater samples. However, none of these latter VOC detections approached their respective groundwater protection standards. Similar low level VOC detections have been reported for full EPA 8260 scans conducted during previous monitoring years. Time-series diagrams for vinyl chloride in groundwater are also provided in Appendix D.

The largest number of parameter exceedances (arsenic, manganese and vinyl chloride) reported at the Hansville Landfill during 2015 continue to be associated with groundwater well MW-14, which is situated on the downgradient (southwest) edge of the solid waste landfill. As noted during previous monitoring years, concentrations of site COCs generally decrease with increasing distance from the landfill.

Geochemical Parameters Indicative of Natural Attenuation

The final CAP identified two field (dissolved oxygen and redox) and three laboratory (sulfate, orthophosphate, and TOC) groundwater analytes as geochemical indicator parameters to be tracked under the site remedy to monitor natural attenuation processes at the Hansville Landfill Site. Low dissolved oxygen levels, low or negative redox, and low sulfate concentrations are typically associated with the reducing/anoxic groundwater conditions that are commonly encountered immediately beneath and downgradient of solid waste landfills. Elevated orthophosphate levels are often associated with septic wastes leakage, and may result in excessive nutrient loading if discharged to surface waters. Decay of organic materials (such as decomposing refuse) can elevate TOC in groundwater beneath and downgradient of a landfill.

During 2015, reducing groundwater conditions continued to be observed in downgradient wells MW-6, MW-13D and MW-14. These wells generally reported the lowest dissolved oxygen (0.08 to 0.97 mg/L) and redox (-78 to 293 mV) levels. The most oxidized groundwater conditions continue to be measured in upgradient well MW-5, and to a lesser extent in well MW-7 (which is the most cross-gradient well in the monitoring network).

As noted during past monitoring years, sulfate and TOC levels remained generally low throughout 2015, with sulfate concentrations ranging from 3.2 mg/L (MW-12I in April) to 32 mg/L (MW-6 in October) and TOC concentrations ranging from < 1 mg/L (MW-5 from April through October, MW-6 in April, and MW-13D throughout the year) to 3.0 mg/L (MW-12I in January and April). Also, similar to previous years, orthophosphate was not detected in any of the groundwater (or surface water) samples analyzed during the 2015 monitoring period (this parameter has never been detected at the Site).

The geochemical indicator parameter results reported during 2015 continue to suggest that reductive groundwater conditions occur immediately beneath and downgradient of the Hansville

landfill. It should also be noted that landfill leachate indicator parameter results showing relatively low, but higher than background, levels of ammonia, chloride and nitrate/nitrite, support the conclusion that the landfill continues to locally affect groundwater quality.

3.1.3 Surface Water Quality

None of the surface water samples analyzed during the 2015 monitoring period reported any of the Hansville Landfill COCs at levels in excess of their site-specific cleanup levels. VOCs, including vinyl chloride, were not detected in any of the surface water samples analyzed during the reporting year.

Low, but detectable concentrations of arsenic and manganese were consistently reported at the majority of the surface water monitoring stations during the monitoring year. Arsenic concentrations in surface water ranged between 0.00079 mg/L (SW-1 in April) to 0.0034 mg/L (SW-6 in October). Manganese concentrations ranged between < 0.001 mg/L (SW-1 in January, April and October) to 0.071 mg/L (SW-6 in October).

As noted during previous monitoring years, surface water stations SW-4 and SW-6, which are situated immediately west (downgradient) of the landfill, typically report the highest levels of site COCs and related landfill indicator parameters. However, arsenic and vinyl chloride concentrations at these same locations are substantially reduced from those initially reported at the Site. Also, levels of chloride (ranging from 3.2 mg/L [SW-6 in April] to 17 mg/L [SW-4 in July and October]), sulfate (ranging from 5.0 mg/L [SW-6 in January and April] to 26 mg/L [SW-4 in October]), TOC (ranging from 1.4 mg/L [SW-1 in July] to 25 mg/L [SW-6 in January and October]), and ammonia (ranging from < 0.030 mg/L in most of the samples to 0.14 mg/L [SW-1 in July]) reported at these surface water monitoring stations have also declined over the same period. As previously noted, orthophosphate was not detected in any of the surface water monitoring locations during 2015.

3.2 STATISTICAL EVALUATION

Consistent with Appendix D of the final Hansville Landfill CAP, groundwater data reported for the 2015 monitoring period were statistically evaluated for selected site COCs. Vinyl chloride and arsenic groundwater results that exceeded their respective site-specific cleanup standards during 2015 were evaluated through a statistical trend analysis and a three-year projection of the calculated trendlines. In addition, the statistical mean and the upper and lower confidence limits (UCL and LCL) were calculated for all of the vinyl chloride and arsenic data obtained over the reporting period.

The statistical analysis was performed using AquaChem (ver. 2014.1) software and curve-fitting modules of Microsoft Excel (ver. 2010). Summary statistics, including calculated means, Mann-Kendall/Sens Slope Test trends, and UCL/LCL results are provided in Table D-1 (Appendix D). The data set used to run the Mann-Kendall/Sens Slope tests is presented on Table D-2. Time-series charts for arsenic and vinyl chloride, including trend projections where appropriate, are also provided in Appendix D.

3.2.1 Statistical Trend Analysis and Time-Series Plots

Three downgradient groundwater monitoring wells (MW-6, MW-12I, and MW-14) reported vinyl chloride concentrations during the 2015 reporting period that exceeded the 0.025 µg/L site-specific cleanup standard. Downgradient well MW-14 also continued to report arsenic concentrations in excess of the 0.005 mg/L site-specific arsenic cleanup standard.

As shown on Table D-1, Mann-Kendall tests performed for these wells generated negative values (indicative of a possible decreasing trend) for both arsenic and vinyl chloride in MW-14. A statistically significant negative Mann-Kendall trend was calculated for vinyl chloride in this well. However, a decreasing Mann-Kendall trend could not be confirmed for arsenic in MW-14. Downgradient wells MW-6 and MW-12I did not report any statistically significant Mann-Kendall trends for vinyl chloride.

Follow-up Sens Slope tests for these same wells confirmed a statistically significant decreasing trend in vinyl chloride levels in MW-14. However, statistically significant Sens Slope concentration trends (either increasing or decreasing) were not reported for either vinyl chloride or arsenic in any of the remaining wells.

Vinyl chloride and arsenic data reported since January 2007 are plotted versus time (time series graphs) for all the remaining groundwater wells monitored during 2015 (Appendix D).

3.2.2 Trend Projections

Vinyl chloride concentration trends in downgradient wells MW-6, MW-12I, and MW-14, and arsenic concentration trends in downgradient well MW-14, were projected through 2017 (a three-year projection) to evaluate the convergence of these COCs towards their respective site-specific cleanup levels. An exponential decay/least-squares regression curve, also known as an attenuation curve, has been overlain on the time-series charts for these wells (Appendix D).

The vinyl chloride trendlines for MW-6, MW-12I, and MW-14 all continue to display a decreasing slope. Consistent with past observations, the current attenuation curve projections appear to predict a slightly more rapid reduction in vinyl chloride concentrations in wells MW-12I and MW-14, than that forecast for well MW-6. However, the most recent vinyl chloride results for MW-12I (0.39 µg/L in October 2015), which were relatively elevated compared to recent results, has somewhat weakened the overall declining trend of this parameter at this downgradient well. The calculated attenuation curve for arsenic in MW-14 also continues to display a pronounced decreasing slope.

3.2.3 Calculation of Upper and Lower Confidence Limits

Employing the statistical procedures and assumptions documented in Appendix D of the final CAP, the AquaChem software was used to calculate the mean and the 95% normal confidence UCL and LCL for the 2015 vinyl chloride and arsenic concentrations in the groundwater monitoring wells in accordance with ASTM D7048-04. The calculated mean, UCL, and LCL for these COCs were then compared to the site specific cleanup levels (0.025 µg/L and 0.005 mg/L for vinyl chloride and arsenic, respectively) to determine the position of the UCL/LCL relative to

the cleanup levels (above or below) and confirm whether the confidence limits are still converging and approaching the cleanup level.

As summarized in Table D-1, the calculated means for the 2015 vinyl chloride results in downgradient wells MW-6, MW-12I, and MW-14 (which were 0.210 µg/L, 0.189 µg/L and 0.178 µg/L, respectively) continue to exceed the 0.025 µg/L site specific cleanup level. The calculated UCLs for vinyl chloride in these same three groundwater monitoring wells also continued to exceed this parameter's site specific cleanup level. However, the vinyl chloride LCL reported for tribal-land well MW-12I (0.022 µg/L) was below the site specific cleanup level. UCL/LCL values could not be calculated for vinyl chloride in MW-5, MW-7 or MW-13D for 2015 because insufficient detections (one or less) were reported in these wells during the current reporting period. The latter detections (or reported non-detections) remained well below the 0.025 µg/L cleanup level.

The calculated mean and UCL for arsenic in MW-14 (0.01273 and 0.02276 mg/L, respectively) exceeded the parameter's 0.005 mg/L site specific cleanup level. However, the arsenic LCL (0.00270 mg/L) in this well was below the site specific cleanup level. In addition, none of the UCL/LCL values calculated for arsenic in the remaining groundwater monitoring wells (MW-5, MW-6, MW-7, MW-12I and MW-13D) exceeded the 0.005 mg/L cleanup level.

4.0 2015 LANDFILL GAS MONITORING

During 2015, the LFG collection system, including the interior wells and trenches and the blower/flare facility, were monitored on a quarterly basis. Performance parameters include methane, oxygen, carbon dioxide, static pressure, and temperature. Operational checks of the LFG system, and system tuning as required, were also conducted on an approximately monthly schedule. The LFG collection system operated normally throughout the reporting year.

LFG probes were also monitored on a quarterly schedule for methane, oxygen, carbon dioxide, and static pressure. The monitoring instruments were calibrated prior to monitoring according to manufacturer recommendations. A zero check against ambient (atmospheric) conditions was performed on each instrument prior to use. Given the inherit sensitivity of the GEM-2000 portable multi-gas analyzer, the detection limit for field measurements of methane can range between 0.3 to 0.5 percent by volume.

4.1 GAS MONITORING RESULTS

Landfill gas monitoring data for the fourth quarter 2015 are presented in Table 4 (Appendix B). LFG monitoring data tables that were previously reported during the preceding 2015 quarters are also attached in Appendix C.

During the fourth quarter of 2015, methane concentrations measured within the active landfill extraction system ranged between 0.0 and 22.2 methane (percent by volume). Similar ranges of methane concentration were reported in the active extraction system during preceding 2015 quarters. The adjusted air flow measured through the LFG collection system during 2015 ranged between 67 and 83 standard cubic feet per minute (scfm). LFG temperatures measured within the extraction well field during the year ranged between 48 and 74 degrees ^{0}F. These temperatures are typical for LFG generated at older solid waste landfills.

The regulatory limit for LFG probes stated in WAC 173-304-460 is 5 percent methane by volume (the lower explosive limit [LEL]) at the site boundary. During 2015, detectable methane concentrations were not reported above the equipment detection limits in any of the perimeter gas probes. Over the 2015 reporting year, oxygen concentrations in the perimeter probes ranged between 13.8 and 20.8 percent by volume, with most measurements remaining slightly under ambient conditions. Carbon dioxide levels measured during the reporting period ranged between 0.0 and 5.4 percent by volume.

The 2015 LFG monitoring results continue to indicate that the site remains in compliance with the subsurface methane threshold limits at the property boundary. These data also suggest that degraded LFG remains present in the soils immediately beneath and surrounding the solid waste disposal areas. Overall, the LFG extraction and monitoring systems at the Hansville Landfill operated within design parameters during the 2015 reporting period.

5.0 REFERENCES

American Society for Testing and Materials. *Standard Guide for Applying Statistical Methods for Assessment and Corrective Action Environmental Monitoring Programs.* ASTM International D7048 – 04. 2010

Parametrix. *Remedial Investigation/Feasibility Study, Remedial Investigation Report, Hansville Landfill.* July 2007.

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Parametrix. *Environmental Monitoring Report – 2010 Annual Report, Hansville Landfill.* March 2011.

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SCS Engineers. *2013 Annual Monitoring Report, Remedial Action at the Hansville Landfill, Kitsap County, WA.* February 2014.

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SCS Engineers. *Third Quarter 2015 Environmental Monitoring Report, Hansville Landfill, Kitsap County, WA.* October 2015.

Washington Department of Ecology. *Cleanup Action Plan, Hansville Landfill, Kitsap County, Washington.* June 2011.

Washington Department of Ecology. *Amended Consent Decree No. 95-2-03005-1 between State of Washington Department of Ecology and Kitsap County and Waste Management of Washington, Inc.* August 2011.

Appendix A

Site Figures

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SOURCE: USGS

SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

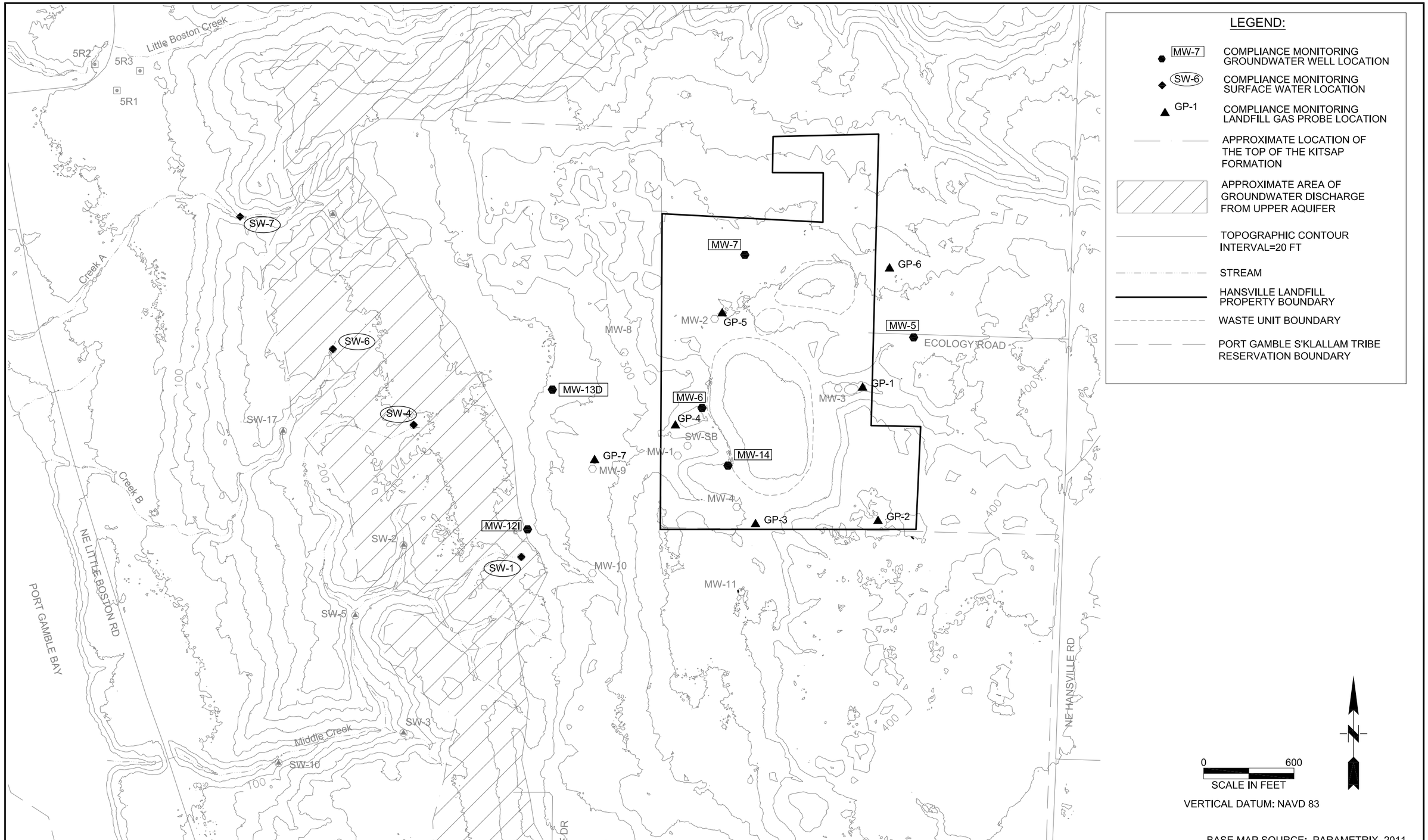
PROJECT NO. 04211017.05	DES BY L.L.
SCALE NA	CHK BY D.V.
CAD FILE FIGURE 1	APP BY G.H.

LANDFILL PROPERTY LOCATION MAP

HANSVILLE LANDFILL SITE
KITSAP COUNTY, WASHINGTON

DATE JAN 2016

FIGURE 1



VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

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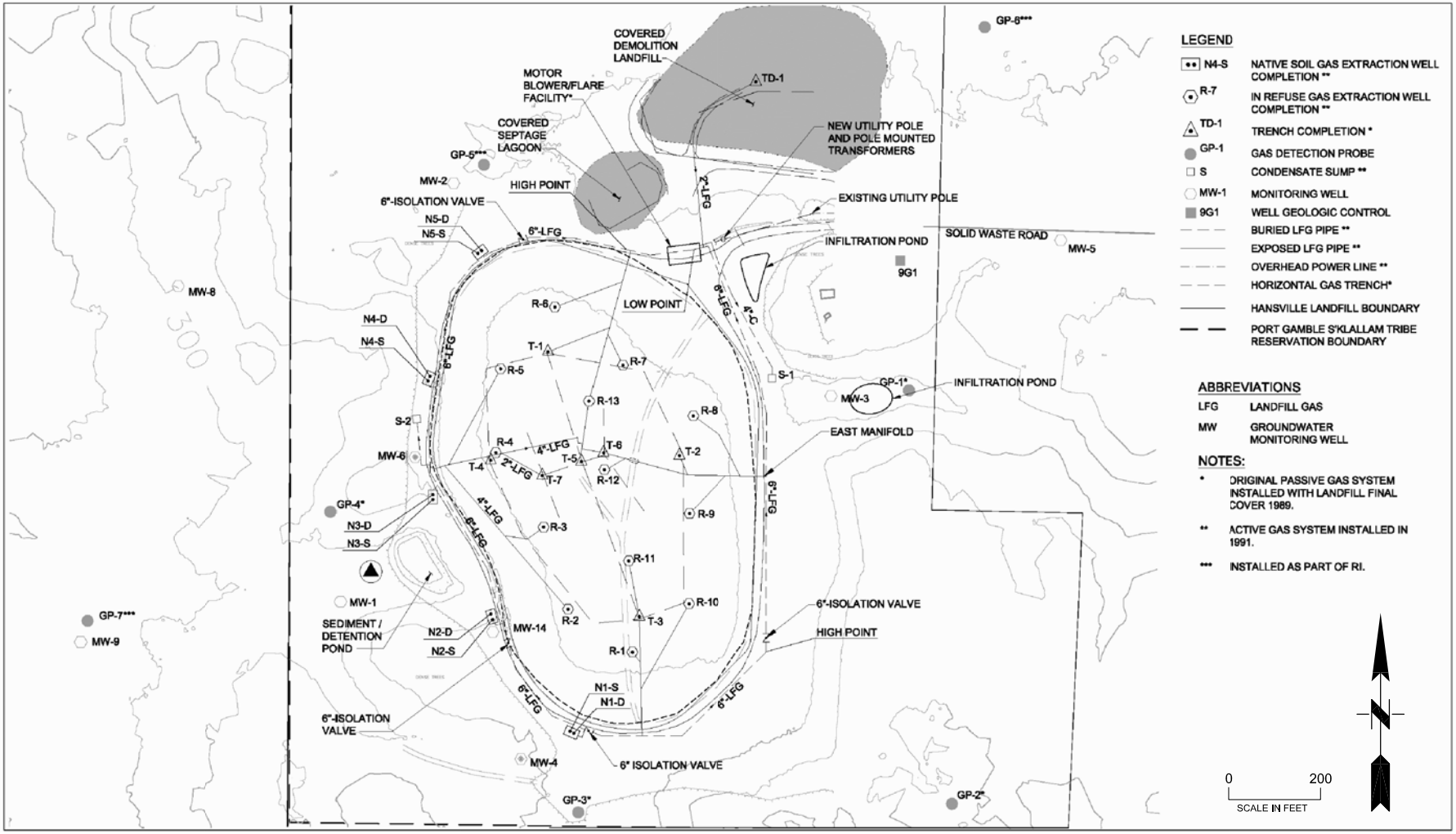
PROJECT NO. 042110017.05	DES BY L.L.	COMPLIANCE MONITORING LOCATIONS HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE JAN 2016
SCALE AS SHOWN	CHK BY D.V.		FIGURE 2
CAD FILE FIGURE 2	APP BY G.H.		



BASE MAP SOURCE: PARAMETRIX, 2004

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PROJECT NO.	DES BY
04211017.05	L.L
SCALE	CHK BY
AS SHOWN	D.V.
CAD FILE	APP BY
FIGURE 3	G.H.

LANDFILL GAS SYSTEM & PROBE LOCATIONS

HANSVILLE LANDFILL
KITSAP COUNTY, WASHINGTON

DATE JAN 2016

FIGURE 3

Appendix B

Fourth Quarter (October) 2015 Summary Data Tables For Groundwater, Surface Water and Landfill Gas & October 2015 Groundwater Contour Map

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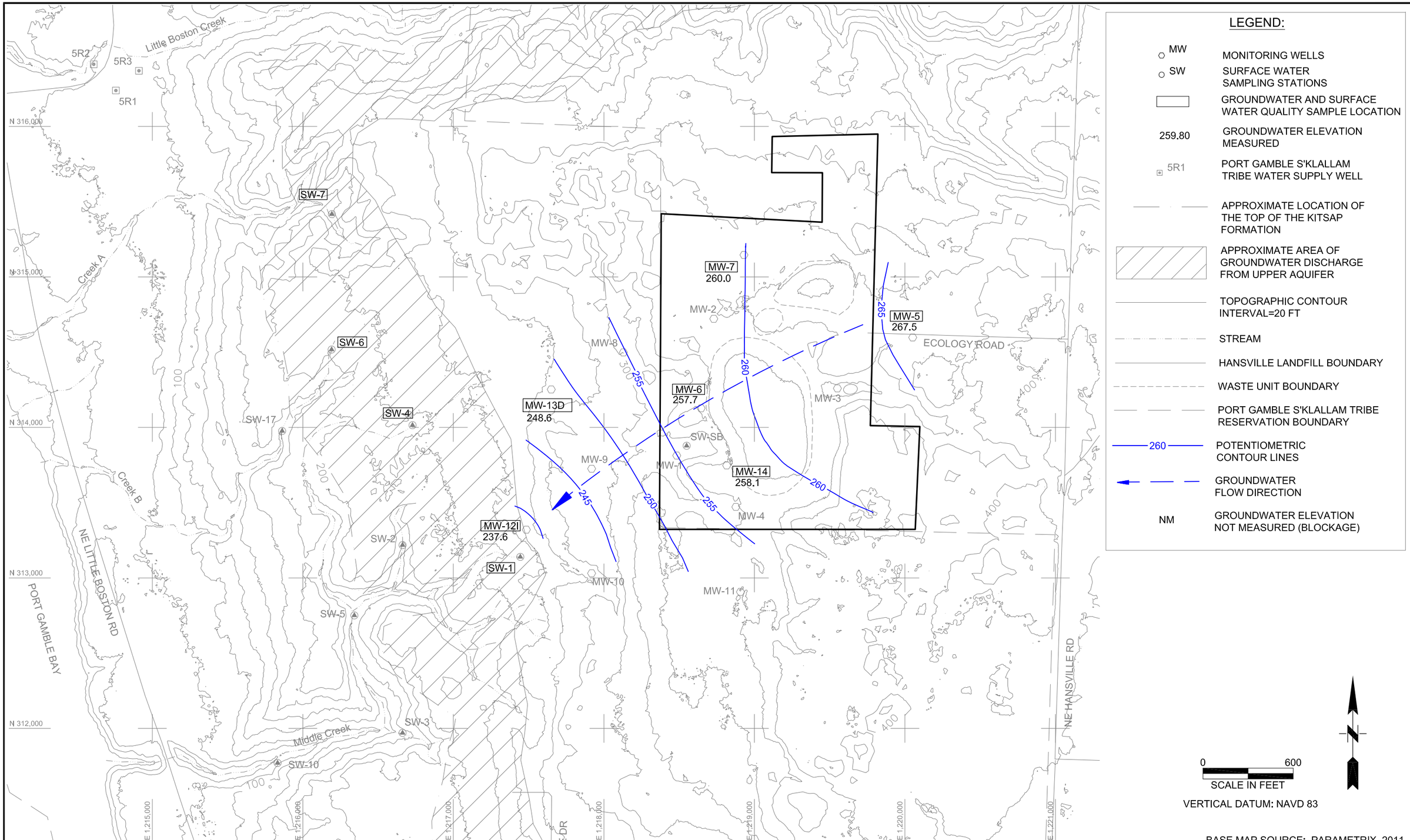
Table 1. Water Level Elevations, Fourth Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 21, 2015

Location ID	Elevations (ft-msl)		Screen Elevation (ft-msl)		Depth to Water (feet)	Water Level Elevation (ft-msl)
	Ground	PVC	Top	Bottom		
MW-5	363.7	366.9	244	234	99.4	267.5
MW-6	332.0	332.7	260	245	75.0	257.7
MW-7	344.3	346.0	259	244	86.0	260.0
MW-12I	245.6	248.1	217	207	10.5	237.6
MW-13D	258.1	260.4	205	195	11.8	248.6
MW-14	338.6	341.1	262	247	83.0	258.1

PVC: PVC wellhead casing measuring point elevation.

ft-msl: Elevation in feet above mean sea level.

Due to electronic water level meter low-level calibration issues the reported depth to water measurements are only recorded to one significant figure.



LEGEND:

- MW — MONITORING WELLS
- SW — SURFACE WATER SAMPLING STATIONS
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- 259.80 — GROUNDWATER ELEVATION MEASURED
- 5R1 — PORT GAMBLE S'KLALLAM TRIBE WATER SUPPLY WELL
- APPROXIMATE LOCATION OF THE TOP OF THE KITSAP FORMATION
- APPROXIMATE AREA OF GROUNDWATER DISCHARGE FROM UPPER AQUIFER
- TOPOGRAPHIC CONTOUR INTERVAL=20 FT
- STREAM
- HANSVILLE LANDFILL BOUNDARY
- WASTE UNIT BOUNDARY
- PORT GAMBLE S'KLALLAM TRIBE RESERVATION BOUNDARY
- 260 — POTENTIOMETRIC CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- NM — GROUNDWATER ELEVATION NOT MEASURED (BLOCKAGE)

0 600
SCALE IN FEET

VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

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PROJECT NO. 042110017.05	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS OCTOBER 21, 2015	DATE JAN 2016
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE 4
CAD FILE FIGURE 4	APP BY G.H.		

Table 2. Groundwater Quality Data, Fourth Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 21, 2015

Parameter	Site Cleanup Level (SCL) [1]	MW-05	MW-06	MW-07	MW-12I	MW-13D	MW-14	MW-14 DUP	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		7.88	0.54	1.44	0.08	0.08	0.10	--	--
pH (units)		7.06	6.89	6.60	7.00	7.38	6.80	--	--
Specific Conductivity (uS)		133	452	256	186	190	269	--	--
Temperature (degrees C)		12.0	14.6	11.1	10.3	10.7	12.7	--	--
Redox (Mv)		78	55	88	41	-34	-78	--	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		63	190	150	100	85	140	130	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		63	190	150	100	85	140	130	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		2.8	24	1.2	3.3	6.3	14	14	--
Nitrate (As N)		0.85	5.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.62 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		9.1	32	3.6	7.7	18	17	18	--
Total Organic Carbon (TOC)		1.0 U	1.5	1.8	2.4	1.0 U	2.2	2.2	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.0017	0.0016	0.0010	0.0022	0.0038	0.0148	0.0146	--
Manganese	2.24	0.001 U	0.540	0.001 U	0.059	0.029	2.5	2.3	--
Volatile Organics Compounds (ug/L) - only vinyl choride using EPA method 8260 SIM									
Vinyl chloride	0.025	0.020 U	0.14	0.020 U	0.39	0.020 U	0.13	0.14	0.020 U

1 SCLs defined in August 2011 consent decree/cleanup action plan.

U Compound not detected at reporting limit.

-- Not Tested.

Shaded results exceed site cleanup levels.

DUP The MW-14 DUP identifier is blind duplicate MW-20DD.

Table 3. Surface Water Quality Data, Fourth Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 21, 2015

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		10.27	8.29	6.21	8.31	--
pH (units)		7.89	7.14	7.34	6.59	--
Specific Conductivity (uS)		186	338	119	140	--
Temperature (degrees C)		11.5	11.6	12.2	11.7	--
Redox (Mv)		121.3	155.8	254.2	271.6	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		93	180	56	76	--
Ammonia (As N)		0.030 U	0.030 U	0.031	0.030 U	--
Bicarbonate		93	180	56	76	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		4.5	17	4.3	4.0	--
Nitrate (As N)		1.8	1.0	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		12	26	12	10	--
Total Organic Carbon (TOC)		2.0	7.5	25	7.8	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.0014	0.0018	0.0034	0.0019	--
Manganese	2.24	0.001 U	0.036	0.071	0.0082	--
Volatile Organics Compounds (ug/L) - only vinyl chloride using EPA method 8260 SIM						
Vinyl chloride	0.025	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

1 SCLs defined in August 2011 consent decree/cleanup action plan.

Shaded results exceed site cleanup levels.

U Compound not detected at reporting limit.

-- Not Tested.

Table 4. Landfill Gas Data, Fourth Quarter 2015 Monitoring
Hansville Landfill, Kitsap County, Washington

Point Name	Record Date	CH4%	CO2%	O2%	Bal Gas%	Init Temp (F)	Adj Temp (F)	MaxInitAdj Temp	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	MaxStatic Pressure	Init Flow (scfm)	Comments
Blower Inlet	10/27/2015 9:11	4.1	11.2	6.8	77.9	65	65	65	-1.6	-1.6	-1.6	79	Comments:"No Change,,,,,,"
Blower Outlet	10/27/2015 9:13	4.1	11.3	6.8	77.8	67	67	67	0.7	0.7	0.7	83	Comments:"No Change,,,,,,"
Extraction Well 001	10/27/2015 8:17	7.8	11.5	0	80.7	63	63	63	-0.6	-0.6	-0.6	3	Comments:"No Change,,,,,,"
Extraction Well 002	10/27/2015 8:15	3.5	12.9	4.8	78.8	63	63	63	-1	-0.9	-0.9	3	Comments:"No Change,,,,,,"
Extraction Well 003	10/27/2015 8:12	11.8	13.7	0	74.5	64	64	64	-0.1	-0.2	-0.1	0	Comments:",,,,,,"
Extraction Well 004	10/27/2015 8:05	3.2	12.7	4.2	79.9	64	64	64	-1	-1	-1	4	Comments:"No Change,,,,,,"
Extraction Well 005	10/27/2015 7:45	2.7	10.9	7.8	78.6	65	65	65	-0.9	-0.9	-0.9	3	Comments:"No Change,,,,,,"
Extraction Well 006	10/27/2015 7:42	5.1	16.7	2.4	75.8	63	63	63	-0.3	-0.3	-0.3	0	Comments:",,,,,,"
Extraction Well 007	10/27/2015 7:39	0	0.4	20.9	78.7	62	62	62	0	0	0	1	Comments:"No Change,,,,,,"
Extraction Well 008	10/27/2015 7:34	5.9	14.1	2.4	77.6	63	63	63	-0.1	-0.1	-0.1	2	Comments:"No Change,,,,,,"
Extraction Well 009	10/27/2015 7:55	2	14.7	2.4	80.9	64	64	64	-0.5	-0.5	-0.5	3	Comments:"No Change,,,,,,"
Extraction Well 010	10/27/2015 8:22	8.6	10.8	2.8	77.8	63	63	63	-0.7	-0.7	-0.7	2	Comments:"No Change,,,,,,"
Extraction Well 011	10/27/2015 8:24	1.9	3.9	1.6	92.6	64	64	64	-0.3	-0.3	-0.3	0	Comments:",,,,,,"
Extraction Well 012	10/27/2015 8:02	4	2.9	1.8	91.3	63	63	63	-0.3	-0.3	-0.3	0	Comments:",,,,,,"
Extraction Well 013	10/27/2015 7:52	4	11.1	2.9	82	63	63	63	-0.7	-0.7	-0.7	3	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 8:50	0	2.8	17.4	79.8	62	62	62	-0.3	-0.3	-0.3	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 8:48	0	2.1	18.3	79.6	64	64	64	-0.6	-0.6	-0.6	3	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 8:54	0	1.1	19.6	79.3	63	63	63	-1	-1	-1	4	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 8:52	0	3.1	17.1	79.8	63	63	63	-1	-1	-1	4	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 8:57	0	2.7	17.8	79.5	62	62	62	-0.1	-0.1	-0.1	1	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 8:56	0	2.8	17.7	79.5	64	64	64	-0.1	-0.1	-0.1	1	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 9:01	0	1.5	19.2	79.3	63	63	63	-0.2	-0.2	-0.2	1	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 9:00	0	2.3	18.4	79.3	62	62	62	-0.7	-0.7	-0.7	3	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 9:04	0	1.4	18.9	79.7	63	63	63	-0.5	-0.5	-0.5	3	Comments:"No Change,,,,,,"
Native Soil Extraction Well	10/27/2015 9:03	0	2.3	18.1	79.6	64	64	64	-0.8	-0.8	-0.8	4	Comments:"No Change,,,,,,"
Probe 1	10/27/2015 8:28	0	1.5	19.4	79.1								Comments:,,,,,,
Probe 2 Deep	10/27/2015 8:38	0	0.1	20.8	79.1								Comments:,,,,,,
Probe 2 Middle	10/27/2015 8:34	0	0.3	20.5	79.2								Comments:,,,,,,
Probe 2 Shallow	10/27/2015 8:32	0	1.1	19.7	79.2								Comments:,,,,,,
Probe 3	10/27/2015 8:42	0	1.2	19.8	79								Comments:,,,,,,
Probe 4	10/27/2015 8:44	0	1.1	19.7	79.2								Comments:,,,,,,
Probe 5	10/27/2015 9:07	0	1.2	19.5	79.3								Comments:,,,,,,
Probe 6	10/27/2015 7:29	0	1.5	19.5	79								Comments:,,,,,,
Probe 7	10/27/2015 8:46	0	0.6	20.4	79								Comments:,,,,,,
Trench Well TD-1	10/27/2015 7:26	1.6	20.4	0.3	77.7	64	64	64	-0.2	-0.2	-0.2	3	Comments:"No Change,,,,,,"
Trench Well TR-1	10/27/2015 7:48	3.3	16.9	0.7	79.1	64	64	64	-0.4	-0.4	-0.4	2	Comments:"No Change,,,,,,"
Trench Well TR-2	10/27/2015 7:36	13.8	16.1	0.3	69.8	65	65	65	-0.3	-0.3	-0.3	3	Comments:"No Change,,,,,,"
Trench Well TR-3	10/27/2015 8:20	15.1	17.9	0	67	64	64	64	-0.5	-0.5	-0.5	4	Comments:"No Change,,,,,,"
Trench Well TR-4	10/27/2015 8:07	6.7	18	0	75.3	62	62	62	-0.5	-0.5	-0.5	5	Comments:"No Change,,,,,,"
Trench Well TR-5	10/27/2015 8:00	0	0.3	20.8	78.9	63	63	63	-0.4	-0.4	-0.4	2	Comments:"No Change,,,,,,"
Trench Well TR-6	10/27/2015 7:58	14.5	7	5.8	72.7	64	64	64	-0.4	-0.4	-0.4	3	Comments:"No Change,,,,,,"
Trench Well TR-7	10/27/2015 8:10	22.2	12.2	0.5	65.1	62	62	62	-0.4	-0.4	-0.4		Comments:",,,,,,"

Appendix C

Summary of Previous Quarter Monitoring Results (Q3, Q2 and Q1 2015)

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Q3 - JULY 2015 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Third Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, July 9, 2015

Location ID	Elevations (ft-msl)		Screen Elevation (ft-msl)		Depth to Water (feet)	Water Level Elevation (ft-msl)
	Ground	PVC	Top	Bottom		
MW-5	363.7	366.9	244	234	103.71	263.19
MW-6	332.0	332.7	260	245	76.00	256.70
MW-7	344.3	346.0	259	244	86.65	259.35
MW-12I	245.6	248.1	217	207	10.85	237.25
MW-13D	258.1	260.4	205	195	12.34	248.06
MW-14	338.6	341.1	262	247	84.24	256.86

PVC: PVC wellhead casing measuring point elevation.
ft-msl: Elevation in feet above mean sea level.

Table A-2. Groundwater Quality Data, Third Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, July 9, 2015

Parameter	Site Cleanup Level (SCL) [1]	MW-05	MW-06	MW-06 DUP	MW-07	MW-12I	MW-13D	MW-14	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		0.82	0.48	--	1.83	0.17	0.16	0.34	--
pH (units)		6.90	6.95	--	6.58	6.92	7.06	6.85	--
Specific Conductivity (uS)		150	414	--	314	163	216	102	--
Temperature (degrees C)		11.6	17.1	--	11.8	11.7	11.6	13.5	--
Redox (Mv)		137.4	143.1	--	137	147.1	134.2	44.0	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		54	130	130	150	70	78	130	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		54	130	130	150	70	78	130	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		3.0	20	20	1.3	2.2	6.4	20.0	--
Nitrate (As N)		0.89	4.1	4.1	0.5 U	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		9.3	29	29	4.1	5.1	18	21	--
Total Organic Carbon (TOC)		1.0 U	1.1	1.1	1.7	2.7	1.0 U	1.9	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00160	0.00164	0.00158	0.00087	0.00216	0.00327	0.0175	--
Manganese	2.24	0.0011	0.410	0.420	0.001 U	0.057	0.035	2.6	--
Volatile Organics Compounds (ug/L) - only vinyl choride using EPA method 8260 SIM									
Vinyl chloride	0.025	0.020 U	0.27	0.26	0.020 U	0.19	0.020 U	0.17	0.020 U

1 SCLs defined in August 2011 consent decree/cleanup action plan.

U Compound not detected at reporting limit.

-- Not Tested.

Shaded results exceed site cleanup levels.

DUP The MW-6 DUP identifier is blind duplicate MW-20DD.

Table A-3. Surface Water Quality Data, Third Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, July 8, 2015

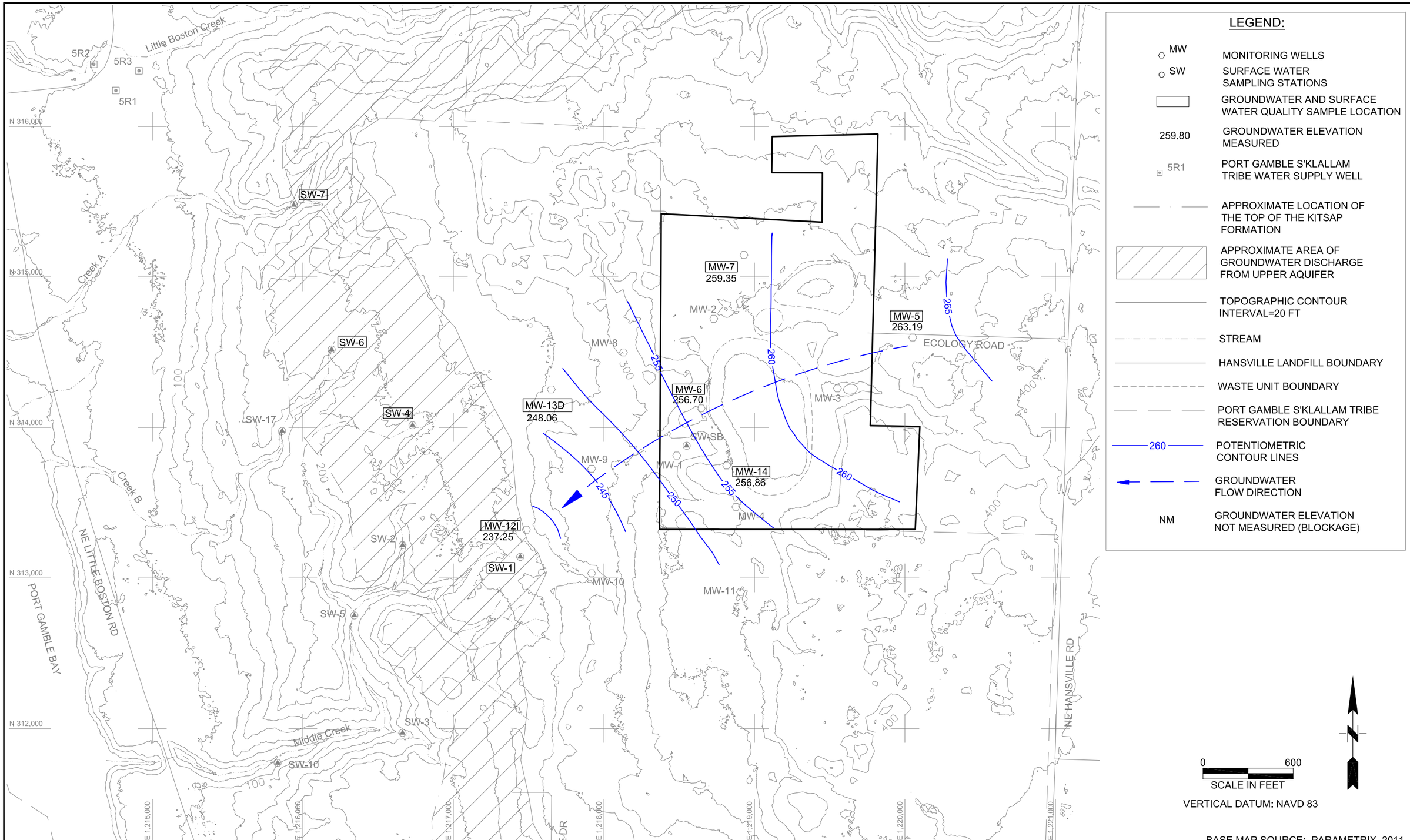
Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		5.98	7.30	dry	7.89	--
pH (units)		7.85	6.92	dry	7.82	--
Specific Conductivity (uS)		292	460	dry	205	--
Temperature (degrees C)		14.7	14.9	dry	15.9	--
Redox (Mv)		148	134.3	dry	140.4	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		98	180	dry	76	--
Ammonia (As N)		0.14	0.030 U	dry	0.030 U	--
Bicarbonate		98	180	dry	76	--
Carbonate		5.0 U	5.0 U	dry	5.0 U	--
Chloride		8.1	17	dry	3.3	--
Nitrate (As N)		2.7	1.0	dry	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	dry	0.5 U	--
Sulfate		16	25	dry	6.8	--
Total Organic Carbon (TOC)		1.4	2.8	dry	5.2	--
Orthophosphate (As P)		0.5 U	0.5 U	dry	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00082	0.00165	dry	0.00184	--
Manganese	2.24	0.013	0.012	dry	0.019	--
Volatile Organics Compounds (ug/L) - only vinyl chloride using EPA method 8260 SIM						
Vinyl chloride	0.025	0.020 U	0.020 U	dry	0.020 U	0.020 U

1 SCLs defined in August 2011 consent decree/cleanup action plan.

-- Not Tested.

Shaded results exceed site cleanup levels.

U Compound not detected at reporting limit.



LEGEND:

- MW — MONITORING WELLS
- SW — SURFACE WATER SAMPLING STATIONS
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- 259.80 — GROUNDWATER ELEVATION MEASURED
- 5R1 — PORT GAMBLE S'KLALLAM TRIBE WATER SUPPLY WELL
- APPROXIMATE LOCATION OF THE TOP OF THE KITSAP FORMATION
- APPROXIMATE AREA OF GROUNDWATER DISCHARGE FROM UPPER AQUIFER
- TOPOGRAPHIC CONTOUR INTERVAL=20 FT
- STREAM
- HANSVILLE LANDFILL BOUNDARY
- WASTE UNIT BOUNDARY
- PORT GAMBLE S'KLALLAM TRIBE RESERVATION BOUNDARY
- 260 — POTENTIOMETRIC CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- NM — GROUNDWATER ELEVATION NOT MEASURED (BLOCKAGE)

0 600
SCALE IN FEET

VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

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PROJECT NO. 042110017.04	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS JULY 9, 2015	DATE AUG 2015
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Table C-1 Landfill Gas Data, Third Quarter 2015 Monitoring
Hansville Landfill, Kitsap County, Washington

Point Name	Record Date	CH4%	CO2%	O2%	Bal Gas%	Init Temp (F)	Adj Temp (F)	MaxInitAdj Temp	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	MaxStatic Pressure	Init Flow (scfm)	Comments
Blower Inlet	8/28/2015 9:01	4.1	10.8	7.1	78	72	72	72	-1.7	-1.7	-1.7	71	Comments:"No Change,,,,,,"
Blower Outlet	8/28/2015 9:02	4.1	10.9	7	78	73	73	73	0.5	0.5	0.5	71	Comments:"No Change,,,,,,"
Extraction Well 001	8/28/2015 8:16	7.2	10.3	1.1	81.4	71	70	71	-0.7	-0.7	-0.7	3	Comments:"No Change,,,,,,"
Extraction Well 002	8/28/2015 8:13	3.8	14	2.8	79.4	71	71	71	-1	-1.1	-1	2	Comments:"No Change,,,,,,"
Extraction Well 003	8/28/2015 8:07	13.4	10.8	0	75.8	66	66	66	-0.4	-0.6	-0.4	1	Comments:"Opened valvev > 1
Extraction Well 004	8/28/2015 8:02	3.7	13.1	3.3	79.9	67	67	67	-1	-1	-1	3	Comments:"No Change,,,,,,"
Extraction Well 005	8/28/2015 7:40	3.8	15.1	1.7	79.4	66	66	66	-1	-1	-1	4	Comments:"No Change,,,,,,"
Extraction Well 006	8/28/2015 7:36	4.9	18.1	0.4	76.6	69	69	69	-0.6	-0.5	-0.5	0	Comments:"No Change,,,,,,"
Extraction Well 007	8/28/2015 7:32	0	0.2	20.8	79	66	67	67	-0.2	-0.2	-0.2	1	Comments:"No Change,,,,,,"
Extraction Well 008	8/28/2015 7:27	5.9	14	2.7	77.4	64	64	64	-0.5	-0.5	-0.5	3	Comments:"No Change,,,,,,"
Extraction Well 009	8/28/2015 7:48	2.1	15.2	1.5	81.2	68	69	69	-0.6	-0.6	-0.6	3	Comments:"No Change,,,,,,"
Extraction Well 010	8/28/2015 8:20	7.1	9.9	3.7	79.3	70	71	71	-0.8	-0.8	-0.8	2	Comments:"No Change,,,,,,"
Extraction Well 011	8/28/2015 8:22	6.6	4	0	89.4	71	71	71	-0.5	-0.6	-0.5	0	Comments:"Opened valve > 1
Extraction Well 012	8/28/2015 7:56	12.8	2.4	0	84.8	70	70	70	-0.6	-0.6	-0.6	1	Comments:"Opened valve > 1
Extraction Well 013	8/28/2015 7:45	4.7	12.6	0.4	82.3	67	67	67	-1	-1	-1	3	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:28	0	2.6	17.4	80	72	72	72	-0.4	-0.4	-0.4	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:27	0	2.3	17.9	79.8	69	69	69	-0.6	-0.6	-0.6	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:35	0	1.1	19.6	79.3	72	72	72	-1.1	-1.1	-1.1	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:33	0	3.7	16.1	80.2	71	71	71	-1.1	-1	-1	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:48	0	2.3	18.1	79.6	72	73	73	-0.3	-0.2	-0.2	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:47	0	2.6	17.7	79.7	70	70	70	-0.3	-0.3	-0.3	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:55	0	1.3	19.3	79.4	72	72	72	-0.3	-0.3	-0.3	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:53	0	2	18.5	79.5	74	74	74	-1.1	-1	-1	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:58	0	1.2	19.4	79.4	73	73	73	-0.6	-0.6	-0.6	2	Comments:"No Change,,,,,,"
Native Soil Extraction Well	8/28/2015 8:57	0	2.2	17.7	80.1	74	74	74	-0.9	-0.9	-0.9	2	Comments:"No Change,,,,,,"
Probe 1	9/10/2015 7:35	0	0.9	20.4	78.7								Comments:,,,,,,
Probe 2 Deep	9/10/2015 7:44	0	0.2	20.7	79.1								Comments:,,,,,,
Probe 2 Middle	9/10/2015 7:48	0	0.9	19.5	79.6								Comments:,,,,,,
Probe 2 Shallow	9/10/2015 7:54	0	0	20.9	79.1								Comments:,,,,,,
Probe 3	9/10/2015 7:59	0	0.9	20.1	79								Comments:,,,,,,
Probe 4	9/10/2015 8:04	0	0.9	20	79.1								Comments:,,,,,,
Probe 5	9/10/2015 7:29	0	0.9	20.3	78.8								Comments:,,,,,,
Probe 6	9/10/2015 7:23	0	1.4	19	79.6								Comments:,,,,,,
Probe 7	9/10/2015 8:13	0	0.3	20.5	79.2								Comments:,,,,,,
Trench Well TD-1	8/28/2015 7:23	1.6	21.5	0	76.9	63	63	63	-0.3	-0.3	-0.3	2	Comments:"No Change,,,,,,"
Trench Well TR-1	8/28/2015 7:42	4.6	17.3	0	78.1	68	68	68	-0.6	-0.6	-0.6	3	Comments:"No Change,,,,,,"
Trench Well TR-2	8/28/2015 7:29	12.7	15.3	0	72	65	65	65	-0.6	-0.6	-0.6	3	Comments:"No Change,,,,,,"
Trench Well TR-3	8/28/2015 8:18	13.8	17.5	0	68.7	70	70	70	-0.6	-0.6	-0.6	4	Comments:"No Change,,,,,,"
Trench Well TR-4	8/28/2015 8:03	7.5	18.5	0	74	67	67	67	-0.6	-0.7	-0.6	4	Comments:"No Change,,,,,,"
Trench Well TR-5	8/28/2015 7:54	0.1	0.1	20.8	79	71	71	71	-0.6	-0.3	-0.3	2	Comments:"Closed valve 1/2 to 1
Trench Well TR-6	8/28/2015 7:52	2.7	1	18.6	77.7	71	71	71	-0.6	-0.4	-0.4	1	Comments:"Closed valve 1/2 to 1
Trench Well TR-7	8/28/2015 7:58	24.1	12	0	63.9	67	67	67	-0.6	-0.3	-0.3	1	Comments:"Closed valve > 1 turn,,,,,"

Q2 - APRIL 2015 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Second Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, April 16, 2015

Location ID	Elevations (ft-msl)		Screen Elevation (ft-msl)		Depth to Water (feet)	Water Level Elevation (ft-msl)
	Ground	PVC	Top	Bottom		
MW-5	363.7	366.9	244	234	102.32	264.58
MW-6	332.0	332.7	260	245	75.80	256.90
MW-7	344.3	346.0	259	244	86.72	259.28
MW-12I	245.6	248.1	217	207	10.49	237.61
MW-13D	258.1	260.4	205	195	11.80	248.60
MW-14	338.6	341.1	262	247	83.76	257.34

PVC: PVC wellhead casing measuring point elevation.
ft-msl: Elevation in feet above mean sea level.

Table A-2. Groundwater Quality Data, Second Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, April 16, 2015

Parameter	Site Cleanup Level (SCL) [1]	MW-05	MW-06	MW-06 DUP	MW-07	MW-12I	MW-13D	MW-14	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		6.64	0.65	--	1.49	0.22	0.16	0.29	--
pH (units)		7.85 HF	7.86 HF	--	7.60 HF	7.88 HF	8.04 HF	7.71 HF	--
Specific Conductivity (uS)		137	336	--	301	104	209	316	--
Temperature (degrees C)		10.7	17.4	--	13.1	11.0	10.9	15.1	--
Redox (Mv)		115.8	145.9	--	147	113.5	117.5	57.3	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		57	130	130	160	62	83	130	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		57	130	130	160	62	83	130	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		2.9	19	19	1.3	1.1	6.3	9.7	--
Nitrate (As N)		0.82	0.77	0.73	0.5 U	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		8.9	26	26	3.7	3.2	18	19	--
Total Organic Carbon (TOC)		1.0 U	1.0 U	1.0 U	1.4	3.0	1.0 U	1.0 U	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00166	0.00173	0.00165	0.00088	0.00227	0.00331	0.0157	--
Manganese	2.24	0.0016	0.320	0.340	0.001 U	0.033	0.028	2.7	--
Volatile Organics Compounds (ug/L) - only vinyl choride using EPA method 8260 SIM									
Vinyl chloride	0.025	0.020 U	0.20	0.20	0.020 U	0.083	0.020 U	0.21	0.020 U

1 SCLs defined in August 2011 consent decree/cleanup action plan.

U Compound not detected at reporting limit.

-- Not Tested.

HF Holding time for pH (4 hours or field measurement) was exceeded. pH was run by laboratory due to field meter failer

Shaded results exceed site cleanup levels.

DUP The MW-6 DUP identifier is blind duplicate MW-20DD.

Table A-3. Surface Water Quality Data, Second Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, April 16, 2015

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		7.19	9.30	9.40	7.83	--
pH (units)		7.81 HF	8.14 HF	7.51 HF	7.91 HF	--
Specific Conductivity (uS)		291	384	120	427	--
Temperature (degrees C)	4	12.1	9.7	8.8	7.2	--
Redox (Mv)		123.4	130	153	172	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		96	160	38	60	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		96	160	38	60	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		8.4	15	3.2	3.5	--
Nitrate (As N)		3.0	1.1	0.5 U	1.6	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		18	22	5.0	9.7	--
Total Organic Carbon (TOC)		1.7	7.3	20	7.2	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00079	0.00176	0.0022	0.0011	--
Manganese	2.24	0.0015 U	0.043	0.021	0.0039	--
Volatile Organics Compounds (ug/L) - only vinyl chloride using EPA method 8260 SIM						
Vinyl chloride	0.025	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

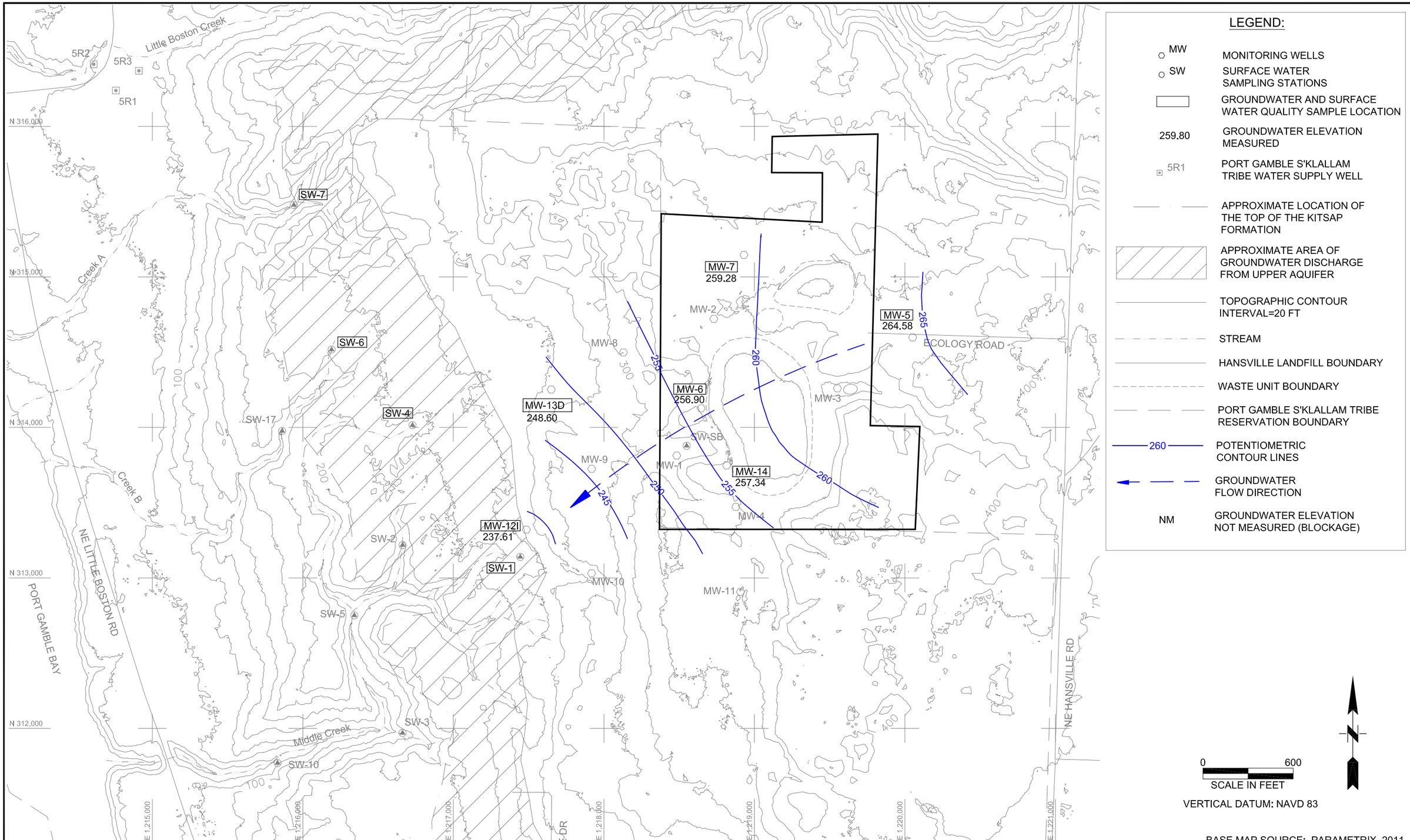
1 SCLs defined in August 2011 consent decree/cleanup action plan.

-- Not Tested.

Shaded results exceed site cleanup levels.

U Compound not detected at reporting limit.

HF Holding time for pH (4 hours or field measurement) was exceeded. pH was run by laboratory due to field meter failer.



LEGEND:

- MW — MONITORING WELLS
- SW — SURFACE WATER SAMPLING STATIONS
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- 259.80 — GROUNDWATER ELEVATION MEASURED
- 5R1 — PORT GAMBLE S'KLALLAM TRIBE WATER SUPPLY WELL
- APPROXIMATE LOCATION OF THE TOP OF THE KITSAP FORMATION
- APPROXIMATE AREA OF GROUNDWATER DISCHARGE FROM UPPER AQUIFER
- TOPOGRAPHIC CONTOUR INTERVAL=20 FT
- STREAM
- HANSVILLE LANDFILL BOUNDARY
- WASTE UNIT BOUNDARY
- PORT GAMBLE S'KLALLAM TRIBE RESERVATION BOUNDARY
- 260 — POTENTIOMETRIC CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- NM — GROUNDWATER ELEVATION NOT MEASURED (BLOCKAGE)

0 600
SCALE IN FEET

VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

SCS ENGINEERS
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Bellevue, Washington 98005
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PROJECT NO. 042110017.04	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS APRIL 16, 2015	DATE MAY 2015
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Table C-1 Landfill Gas Data, Second Quarter 2015 Monitoring
Hansville Landfill, Kitsap County, Washington

Point Name	Record Date	CH4%	CO2%	O2%	Bal Gas%	Init Temp (F)	Adj Temp (F)	MaxInitAdj Temp	Static Pressure ("H2O)	Static Pressure ("H20)	MaxStatic Pressure	Init Flow (scfm)	Comments
Blower Inlet	5/20/2015 8:57	3.5	10.1	7.5	78.9	53	53	53	-1.6	-1.5	-1.5	64	No Change
Blower Outlet	5/20/2015 8:59	3.5	10.1	7.5	78.9	66	66	66	0.7	0.6	0.7	71	No Change
Extraction Well 001	5/20/2015 8:21	6	9.7	1.9	82.4	52	52	52	-0.6	-0.5	-0.5	2	No Change
Extraction Well 002	5/20/2015 8:18	2.1	10.3	8.1	79.5	51	51	51	-0.9	-0.9	-0.9	2	No Change
Extraction Well 003	5/20/2015 8:15	10.7	12.7	0	76.6	51	52	52	-0.3	-0.3	-0.3		No Change
Extraction Well 004	5/20/2015 8:09	3.1	12.3	4.4	80.2	52	52	52	-0.9	-0.9	-0.9	3	No Change
Extraction Well 005	5/20/2015 7:44	2.8	14.5	2.3	80.4	53	54	54	-0.9	-0.9	-0.9	4	No Change
Extraction Well 006	5/20/2015 7:39	4	17.8	0.2	78	52	52	52	-0.6	-0.3	-0.3	1	No Change
Extraction Well 007	5/20/2015 7:35	0	0.2	20.9	78.9	50	51	51	-0.1	-0.1	-0.1	1	No Change
Extraction Well 008	5/20/2015 7:29	4.9	13.9	2.7	78.5	51	52	52	-0.4	-0.3	-0.3	2	No Change
Extraction Well 009	5/20/2015 7:53	1.5	14.1	3	81.4	51	52	52	-0.4	-0.4	-0.4	2	No Change
Extraction Well 010	5/20/2015 8:26	5.9	8.7	4.7	80.7	51	52	52	-0.6	-0.6	-0.6	2	No Change
Extraction Well 011	5/20/2015 8:29	6.4	3.5	0	90.1	53	52	53	-0.3	-0.2	-0.2	0	No Change
Extraction Well 012	5/20/2015 8:01	13.2	2.5	0	84.3	53	53	53	-0.3	-0.3	-0.3	0	No Change
Extraction Well 013	5/20/2015 7:50	4	11.4	1.8	82.8	52	52	52	-0.7	-0.7	-0.7	2	No Change
Deep	5/20/2015 8:37	0	2.4	17.9	79.7	52	52	52	-0.3	-0.3	-0.3	1	No Change
Shallow	5/20/2015 8:35	0	2.4	17.9	79.7	53	53	53	-0.5	-0.5	-0.5	1	No Change
Deep	5/20/2015 8:41	0	1	19.8	79.2	52	51	52	-0.9	-0.9	-0.9	2	No Change
Shallow	5/20/2015 8:39	0	2.7	17.3	80	53	52	53	-0.9	-0.9	-0.9	2	No Change
Deep	5/20/2015 8:46	0	2.2	18.3	79.5	52	52	52	-0.1	-0.1	-0.1	1	No Change
Shallow	5/20/2015 8:44	0	2.7	18	79.3	53	53	53	-0.1	-0.1	-0.1	1	No Change
Deep	5/20/2015 8:50	0	0.4	20.6	79	52	53	53	-0.2	-0.2	-0.2	1	No Change
Shallow	5/20/2015 8:48	0	2.4	18.6	79	52	51	52	-0.9	-0.9	-0.9	2	No Change
Deep	5/20/2015 8:54	0	1.8	18.8	79.4	53	53	53	-0.5	-0.5	-0.5	2	No Change
Shallow	5/20/2015 8:53	0	2.3	17.8	79.9	52	52	52	-0.8	-0.8	-0.8	2	No Change
Probe 1	5/20/2015 9:08	0	1.4	18.7	79.9								
Probe 2 Deep	5/20/2015 9:22	0	0.3	20.3	79.4								
Probe 2 Middle	5/20/2015 9:16	0	0.5	19.9	79.6								
Probe 2 Shallow	5/20/2015 9:14	0	0.9	19.1	80								
Probe 3	5/20/2015 9:28	0	1	19.9	79.1								
Probe 4	5/20/2015 9:30	0	1	20	79								
Probe 5	5/20/2015 9:37	0	1	19.9	79.1								
Probe 6	5/20/2015 7:25	0	3.2	16.6	80.2								
Probe 7	5/20/2015 9:31	0	0.5	20.7	78.8								

Table C-1 Landfill Gas Data, Second Quarter 2015 Monitoring
Hansville Landfill, Kitsap County, Washington

Trench Well TD-1	5/20/2015 7:22	4.9	19.8	0	75.3	52	52	52	0	-0.1	0	2	No Change
Trench Well TR-1	5/20/2015 7:47	3.2	16	0	80.8	53	52	53	-0.5	-0.5	-0.5	3	No Change
Trench Well TR-2	5/20/2015 7:32	9.4	12.8	1.5	76.3	51	51	51	-0.4	-0.4	-0.4	3	No Change
Trench Well TR-3	5/20/2015 8:24	8.4	12.2	4.7	74.7	52	52	52	-0.4	-0.4	-0.4	4	No Change
Trench Well TR-4	5/20/2015 8:11	5.2	16.5	0.2	78.1	51	52	52	-0.5	-0.5	-0.5	4	No Change
Trench Well TR-5	5/20/2015 7:59	0	0.1	20.9	79	52	53	53	-0.4	-0.4	-0.4	2	No Change
Trench Well TR-6	5/20/2015 7:57	0	0.2	20.8	79	51	51	51	-0.4	-0.4	-0.4	1	No Change
Trench Well TR-7	5/20/2015 8:06	21.6	7.8	0	70.6	54	53	54	-0.4	-0.4	-0.4	1	No Change

Q1 - JANUARY 2015 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, First Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, January 21-22, 2015

Location ID	Elevations (ft-msl)		Screen Elevation (ft-msl)		Depth to Water (feet)	Water Level Elevation (ft-msl)
	Ground	PVC	Top	Bottom		
MW-5	363.7	366.9	244	234	102.57	264.33
MW-6	332.0	332.7	260	245	75.95	256.75
MW-7	344.3	346.0	259	244	86.97	259.03
MW-12I	245.6	248.1	217	207	32.46	215.64
MW-13D	258.1	260.4	205	195	11.97	248.43
MW-14	338.6	341.1	262	247	83.50	257.60

PVC: PVC wellhead casing measuring point elevation.
ft-msl: Elevation in feet above mean sea level.

Table A-2. Groundwater Quality Data, First Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, January 21-22, 2015

Parameter	Site Cleanup Level (SCL) [1]	MW-05	MW-06	MW-06 DUP	MW-07	MW-12I	MW-13D	MW-14	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		6.81	0.97	--	1.24	0.53	0.39	0.54	--
pH (units)		7.61	7.48	--	7.48	7.83	7.04	7.47	--
Specific Conductivity (uS)		138	350	--	300	116	210	271	--
Temperature (degrees C)		10.2	16.1	--	9.7	9.6	9.9	11.6	--
Redox (Mv)		234	293	--	330	312	213	135	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		57	130	120	160	61	87	120	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030	--
Bicarbonate		57	130	120	160	61	87	120	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		2.8	18	17	1.1	1.7	6.4	6.3	--
Nitrate (As N)		0.73	1.9	1.9	0.5 U	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		8.2	25	25	3.4	3.3	15	17	--
Total Organic Carbon (TOC)		1.0 U	1.0 U	1.0 U	1.3	3.0	1.0 U	1.0 U	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00190	0.00178	0.00186	0.00098	0.00236	0.00358	0.0177	--
Manganese	2.24	0.0011	0.430	0.460	0.001 U	0.023	0.027	2.6	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.									
Chlorodifluromethane		1.0 U	1.3	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene, total		2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.3	2.0 U
cis-1,2-Dichloroethene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.3	1.0 U
Ethyl ether		1.0 U	2.4	2.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride*	0.025	0.020 U	0.23	0.21	0.020 U	0.094	0.020 U	0.19	0.020 U

1 SCLs defined in August 2011 consent decree/cleanup action plan.

U Compound not detected at reporting limit.

-- Not Tested.

* Vinyl chloride was analyzed using EPA method 8260 SIM.

Shaded results exceed site cleanup levels.

DUP The MW-6 DUP identifier is blind duplicate MW-20DD.

Table A-3. Surface Water Quality Data, First Quarter 2015 Monitoring Event
Hansville Landfill, Kitsap County, Washington, January 21-22, 2015

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		6.54	8.09	6.42	6.85	--
pH (units)		7.85	6.37	6.70	6.15	--
Specific Conductivity (uS)		214	359	98	159	--
Temperature (degrees C)		8.8	7.5	6.3	5.7	--
Redox (Mv)		334	318	309	326	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		91	150	32	53	--
Ammonia (As N)		0.055	0.030 U	0.030 U	0.030 U	--
Bicarbonate		91	150	32	53	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		3.9	11	3.7	3.8	--
Nitrate (As N)		1.9	1.2	1.3	2.8	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		9.7	17	5.0	8.0	--
Total Organic Carbon (TOC)		2.7	11	25	8.6	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00143	0.00166	0.00167	0.0010	--
Manganese	2.24	0.001 U	0.045	0.0092	0.0024	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.						
Vinyl chloride	0.025	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

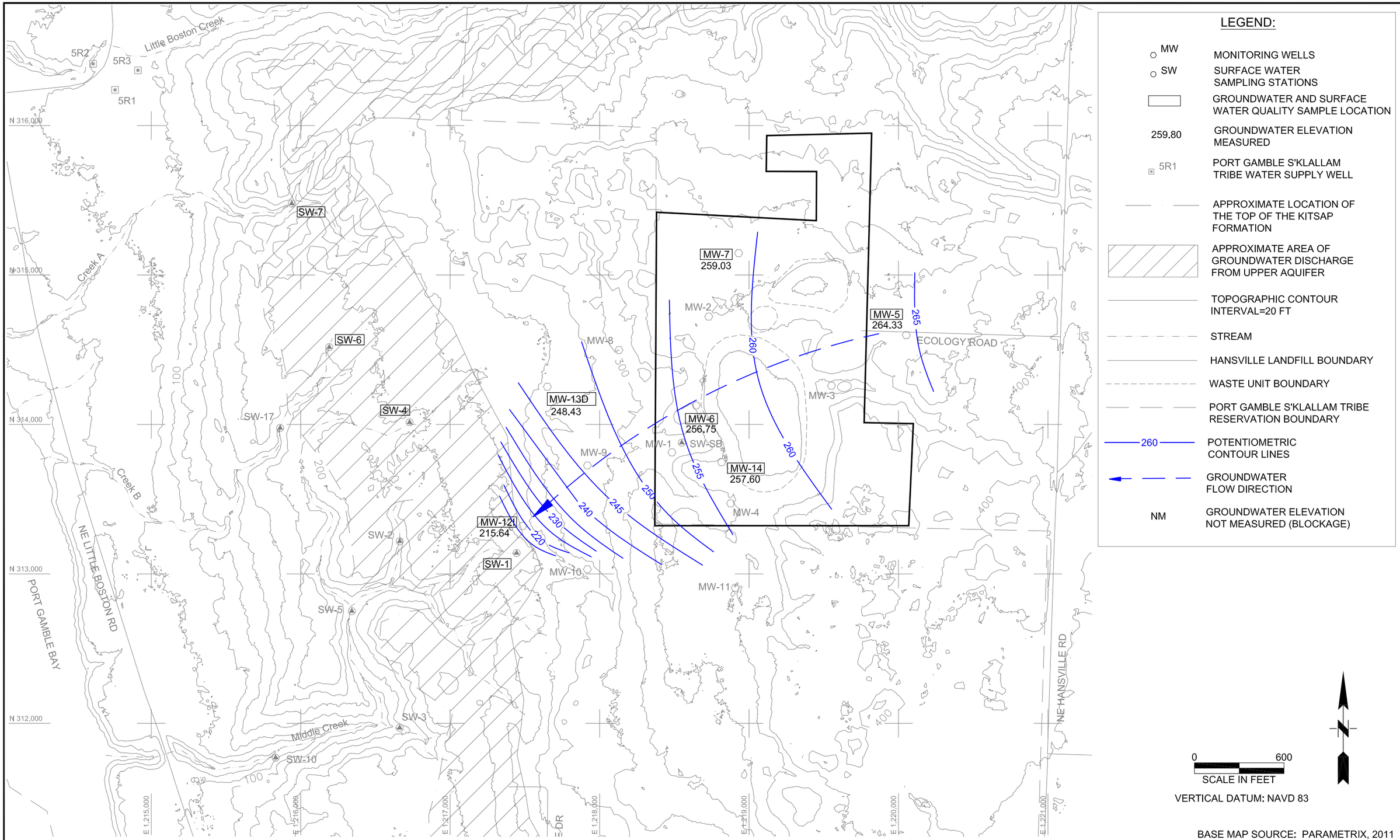
1 SCLs defined in August 2011 consent decree/cleanup action plan.

-- Not Tested.

Shaded results exceed site cleanup levels.

U Compound not detected at reporting limit.

* Vinyl chloride was analyzed using EPA method 8260 SIM.



LEGEND:

- MW — MONITORING WELLS
- SW — SURFACE WATER SAMPLING STATIONS
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- 259.80 — GROUNDWATER ELEVATION MEASURED
- 5R1 — PORT GAMBLE S'KLALLAM TRIBE WATER SUPPLY WELL
- APPROXIMATE LOCATION OF THE TOP OF THE KITSAP FORMATION
- APPROXIMATE AREA OF GROUNDWATER DISCHARGE FROM UPPER AQUIFER
- TOPOGRAPHIC CONTOUR INTERVAL=20 FT
- STREAM
- HANSVILLE LANDFILL BOUNDARY
- WASTE UNIT BOUNDARY
- PORT GAMBLE S'KLALLAM TRIBE RESERVATION BOUNDARY
- 260 — POTENTIOMETRIC CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- NM — GROUNDWATER ELEVATION NOT MEASURED (BLOCKAGE)

0 600
SCALE IN FEET

VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO. 042110017.04	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS JANUARY 21-22, 2015	DATE FEB 2015
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Table C-1 Landfill Gas Data, First Quarter 2015 Monitoring
Hansville Landfill, Kitsap County, Washington

Point Name	Record Date	CH4%	CO2%	O2%	Bal Gas%	Init Temp (F)	Adj Temp (F)	MaxInitAdjTemp	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	MaxStatic Pressure	Init Flow (scfm)	Comments
Blower Inlet	3/20/2015 7:55	4.9	10.6	6.2	78.3	51	51	51	-1.5	-1.4	-1.4	67	No Change
Blower Outlet	3/20/2015 7:57	4.8	10.4	6.4	78.4	62	62	62	0.8	0.8	0.8	71	No Change
Extraction Well 001	3/20/2015 7:17	5.8	11	0	83.2	51	51	51	-0.4	-0.3	-0.3	4	No Change
Extraction Well 002	3/20/2015 7:14	2.9	14	3.8	79.3	51	51	51	-0.8	-0.8	-0.8	3	No Change
Extraction Well 003	3/20/2015 6:59	24	8.7	0	67.3	50	51	51	-0.2	-0.2	-0.2	0	No Change
Extraction Well 004	3/20/2015 7:05	3.3	12.9	3.7	80.1	50	50	50	-0.8	-0.8	-0.8	2	No Change
Extraction Well 005	3/20/2015 6:42	2.6	14.7	2.4	80.3	48	48	48	-0.8	-0.8	-0.8	2	No Change
Extraction Well 006	3/20/2015 6:39	3.7	18	0.2	78.1	49	50	50	-0.3	-0.3	-0.3	0	No Change
Extraction Well 007	3/20/2015 6:35	1.6	14.7	0	83.7	49	49	49	0.2	0.2	0.2	1	No Change
Extraction Well 008	3/20/2015 6:30	5.5	15.3	1.3	77.9	51	52	52	-0.2	-0.2	-0.2	3	No Change
Extraction Well 009	3/20/2015 6:50	1.7	14.8	2.2	81.3	51	50	51	-0.3	-0.3	-0.3	2	No Change
Extraction Well 010	3/20/2015 7:22	5.1	9.5	3.4	82	51	51	51	-0.6	-0.5	-0.5	3	No Change
Extraction Well 011	3/20/2015 7:11	11.7	12.6	0	75.7	50	49	50	0	0	0	1	No Change
Extraction Well 012	3/20/2015 7:25	6.7	3.9	0	89.4	50	50	50	0	0	0	0	No Change
Extraction Well 013	3/20/2015 6:47	4.2	12.2	1.2	82.4	51	51	51	-0.5	-0.5	-0.5	2	No Change
Native Soil Extraction Well 1 Deep	3/20/2015 7:30	0.1	2.7	17.9	79.3	51	50	51	-0.1	-0.1	-0.1	2	No Change
Native Soil Extraction Well 1 Shallow	3/20/2015 7:28	0.1	2.6	18	79.3	50	50	50	-0.2	-0.2	-0.2	2	No Change
Native Soil Extraction Well 2 Deep	3/20/2015 7:33	0.1	1.3	19.8	78.8	50	50	50	-0.3	-0.3	-0.3	2	No Change
Native Soil Extraction Well 2 Shallow	3/20/2015 7:32	0.1	3	17.6	79.3	51	51	51	-0.3	-0.3	-0.3	2	No Change
Native Soil Extraction Well 3 Deep	3/20/2015 7:40	0.1	2.6	18.3	79	49	50	50	-0.1	-0.1	-0.1	2	No Change
Native Soil Extraction Well 3 Shallow	3/20/2015 7:39	0.1	2.9	17.8	79.2	49	49	49	-0.1	-0.1	-0.1	2	No Change
Native Soil Extraction Well 4 Deep	3/20/2015 7:46	0.1	1.5	19.6	78.8	48	48	48	-0.1	-0.1	-0.1	2	No Change
Native Soil Extraction Well 4 Shallow	3/20/2015 7:45	0.1	2.4	18.8	78.7	48	49	49	-0.7	-0.7	-0.7	2	No Change
Native Soil Extraction Well 5 Deep	3/20/2015 7:49	0.1	1.6	19.5	78.8	50	50	50	-0.7	-0.6	-0.6	2	No Change
Native Soil Extraction Well 5 Shallow	3/20/2015 7:48	0.1	2.4	18.1	79.4	49	50	50	-0.7	-0.7	-0.7	2	No Change
Probe 1	3/20/2015 8:06	0	1.9	18.7	79.4								
Probe 2 Deep	3/20/2015 8:18	0	1	18.3	80.7								
Probe 2 Middle	3/20/2015 8:14	0	1.1	18.9	80								
Probe 2 Shallow	3/20/2015 8:11	0	1.1	19.3	79.6								
Probe 3	3/20/2015 8:22	0	1.1	20.3	78.6								
Probe 4	3/20/2015 8:28	0	1.7	19.7	78.6								
Probe 5	3/20/2015 8:39	0	1.4	19.7	78.9								
Probe 6	3/20/2015 6:25	0	5.4	13.8	80.8								
Probe 7	3/20/2015 8:31	0	1.4	20.3	78.3								

Table C-1 Landfill Gas Data, First Quarter 2015 Monitoring
Hansville Landfill, Kitsap County, Washington

Point Name	Record Date	CH4%	CO2%	O2%	Bal Gas%	Init Temp (F)	Adj Temp (F)	MaxInitAdjTemp	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	MaxStatic Pressure	Init Flow (scfm)	Comments
Trench Well TD-1	3/20/2015 6:22	3.2	19.6	0	77.2	50	50	50	0	0	0	2	No Change
Trench Well TR-1	3/20/2015 6:44	3.3	15.8	0	80.9	49	50	50	-0.3	-0.2	-0.2	3	No Change
Trench Well TR-2	3/20/2015 6:33	10.5	13.5	0	76	50	51	51	-0.2	-0.2	-0.2	5	No Change
Trench Well TR-3	3/20/2015 7:19	13.5	15.2	0	71.3	50	51	51	-0.3	-0.3	-0.3	2	No Change
Trench Well TR-4	3/20/2015 7:08	7.5	15.4	0	77.1	48	49	49	-0.3	-0.3	-0.3	4	No Change
Trench Well TR-5	3/20/2015 6:55	0.1	0.2	20.9	78.8	49	49	49	-0.2	-0.2	-0.2	2	No Change
Trench Well TR-6	3/20/2015 6:53	19.5	6.4	2.2	71.9	50	51	51	-0.3	-0.3	-0.3	3	No Change
Trench Well TR-7	3/20/2015 6:57	14.6	2.8	0	82.6	50	50	50	0	0	0	0	No Change

Appendix D

2015 Groundwater Statistics and Time Series Plots

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Table D-1. Statistical Evaluations, Hansville Landfill

Arsenic (mg/L)

Monitoring Location	*Mean*	*LCL*	*UCL*	*Site Cleanup Level*	**Mann-Kendall Test**				**Sen's Test**	
					Mann-Kendall (S)	*Z*	*Probability %*	*Trend*	*Sen's Slope*	*Trend*
MW-05	0.00129	0.00026	0.00231	0.005	—		—	—	—	—
MW-06	0.00128	0.00027	0.00230	0.005	—		—	—	—	—
MW-07	0.00068	0.00014	0.00120	0.005	—		—	—	—	—
MW-12I	0.00170	0.00036	0.00303	0.005	—		—	—	—	—
MW-13D	0.00253	0.00054	0.00451	0.005	—		—	—	—	—
MW-14	0.01273	0.00270	0.02276	0.005	-50	-1.59	5.6	N	0.00000241	N

Vinyl Chloride (µg/L)

Monitoring Location	*Mean*	*LCL*	*UCL*	*Site Cleanup Level*	**Mann-Kendall Test**				**Sen's Test**	
					Mann-Kendall (S)	*Z*	*Probability %*	*Trend*	*Sen's Slope*	*Trend*
MW-05	—	—	—	0.025	—			—	—	—
MW-06	0.210	0.146	0.274	0.025	8	0.227	41.02	N	0.0001031	N
MW-07	—	—	—	0.025	—			—	—	—
MW-12I	0.189	0.022	0.356	0.025	-5	-0.13	44.84	N	-0.0000010	N
MW-13D	—	—	—	0.025	—			—	—	—
MW-14	0.178	0.142	0.213	0.025	-129	-4.155	0.001	↓	-0.0001275	↓

Footnotes:

N = 4 (Mean, LCL, UCL); 20 (Mann-Kendall/Sen's Test)

Mean, LCL and UCL at 95%

N/A = Not applicable, data are all non-detect.

NDs set at 1/2 the MDL

Probability % is the Mann-Kendall p-value shown in a percentage format (i.e, raw p-value mutipiled by factor of 100).

(—) not applicable

95% confidence level

(↑) *Test identifies a significant increasing trend*

(↓) *Test identifies a significant decreasing trend*

(N) *Test identifies no significant trend*

Table D-2. Statistical Data Set (N=20), Hansville Landfill

Sample ID	Location	Date Sampled	Vinyl Chloride (µg/L)	Arsenic (mg/L)
0111-01	MW-05	1/25/2011	<0.004	0.002
0111-02	MW-06	1/25/2011	0.24	0.0049
0111-03	MW-07	1/25/2011	<0.004	0.00059
0111-04	MW-12I	1/25/2011	0.21	0.0019
0111-05	MW-13D	1/25/2011	<0.004	0.0031
0111-06	MW-14	1/25/2011	0.45	0.026
0411-01	MW-05	4/14/2011	<0.004	0.0004
0411-02	MW-06	4/14/2011	0.21	0.0013
0411-03	MW-07	4/14/2011	<0.004	0.004
0411-04	MW-12I	4/14/2011	0.16	0.004
0411-05	MW-13D	4/14/2011	<0.004	0.0011
0411-06	MW-14	4/14/2011	0.32	0.022
0711-01	MW-05	7/25/2011	<0.004	0.0018
0711-02	MW-06	7/25/2011	0.12	0.0027
0711-03	MW-07	7/25/2011	<0.004	0.00106
0711-04	MW-12I	7/25/2011	0.2	0.0018
0711-05	MW-13D	7/25/2011	0.0082	0.003
0711-06	MW-14	7/25/2011	0.23	0.0205
1011-01	MW-05	10/4/2011	<0.004	0.002
1011-02	MW-06	10/4/2011	0.19	0.0032
1011-03	MW-07	10/4/2011	<0.004	0.00107
1011-04	MW-12I	10/4/2011	0.24	0.0022
1011-05	MW-13D	10/4/2011	<0.004	0.0032
1011-06	MW-14	10/4/2011	0.27	0.0226
0112-01	MW-05	1/31/2012	<0.004	0.0019
0112-02	MW-06	1/31/2012	0.35	0.00319
0112-03	MW-07	1/31/2012	<0.004	0.00106
0112-04	MW-12I	1/31/2012	0.19	0.00222
0112-05	MW-13D	1/31/2012	<0.004	0.00293
0112-06	MW-14	1/31/2012	0.28	0.0194
0412-01	MW-05	4/19/2012	<0.004	0.00192
0412-02	MW-06	4/19/2012	0.18	0.0032
0412-03	MW-07	4/19/2012	<0.004	0.0011
0412-04	MW-12I	4/19/2012	0.13	0.0021
0412-05	MW-13D	4/19/2012	0.016	0.00307
0412-06	MW-14	4/19/2012	0.35	0.00788
0712-01	MW-05	7/5/2012	<0.004	0.00210
0712-02	MW-06	7/5/2012	0.22	0.00360
0712-03	MW-07	7/5/2012	<0.004	0.00112
0712-04	MW-12I	7/5/2012	0.15	0.00250
0712-05	MW-13D	7/5/2012	0.0049	0.00340

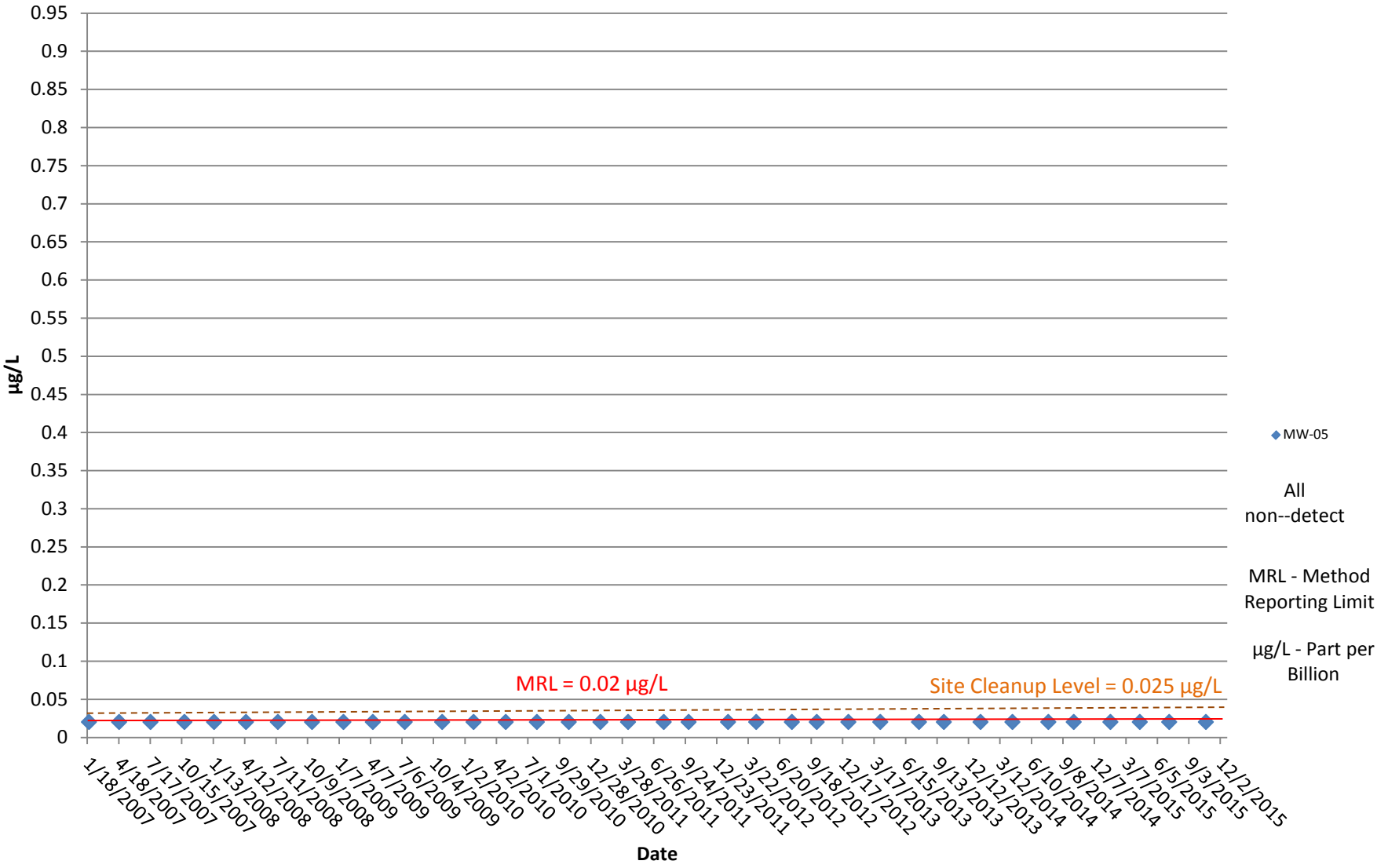
Table D-2. Statistical Data Set (N=20), Hansville Landfill

Sample ID	Location	Date Sampled	Vinyl Chloride (µg/L)	Arsenic (mg/L)
0712-06	MW-14	7/5/2012	0.24	0.02160
1012-01	MW-05	10/2/2012	<0.004	0.00177
1012-02	MW-06	10/2/2012	0.43	0.00330
1012-03	MW-07	10/2/2012	<0.004	0.00105
1012-04	MW-12I	10/2/2012	0.34	0.00205
1012-05	MW-13D	10/2/2012	<0.004	0.00316
1012-06	MW-14	10/2/2012	0.27	0.02120
0113-01	MW-05	1/3/2013	<0.004	0.00207
0113-02	MW-06	1/3/2013	0.23	0.00350
0113-03	MW-07	1/3/2013	<0.004	0.00360
0113-04	MW-12I	1/3/2013	0.11	0.00212
0113-05	MW-13D	1/3/2013	<0.004	0.0034
0113-06	MW-14	1/3/2013	0.25	0.0202
0413-01	MW-05	4/4/2013	<0.004	0.00185
0413-02	MW-06	4/4/2013	0.17	0.00330
0413-03	MW-07	4/4/2013	<0.004	0.00104
0413-04	MW-12I	4/4/2013	0.16	0.00192
0413-05	MW-13D	4/4/2013	<0.004	0.00342
0413-06	MW-14	4/4/2013	0.25	0.0213
0713-01	MW-05	7/24/2013	< 0.020	0.00180
0713-02	MW-06	7/24/2013	0.28	0.00259
0713-03	MW-07	7/24/2013	< 0.020	0.00096
0713-04	MW-12I	7/24/2013	0.16	0.00191
0713-05	MW-13D	7/24/2013	< 0.020	0.00330
0713-06	MW-14	7/24/2013	0.25	0.0184
1013-01	MW-05	10/3/2013	<0.02	0.00210
1013-02	MW-06	10/3/2013	0.34	0.00230
1013-03	MW-07	10/3/2013	<0.02	0.00094
1013-04	MW-12I	10/3/2013	0.23	0.00220
1013-05	MW-13D	10/3/2013	<0.02	0.00301
1013-06	MW-14	10/3/2013	0.22	0.01580
0114-01	MW-05	1/16/2014	<0.02	0.00163
0114-02	MW-06	1/16/2014	0.51	0.00259
0114-03	MW-07	1/16/2014	<0.02	0.00093
0114-04	MW-12I	1/16/2014	0.22	0.00201
0114-05	MW-13D	1/16/2014	<0.02	0.00308
0114-06	MW-14	1/16/2014	0.16	0.01510
0414-01	MW-14	4/17/2014	0.21	0.0156
0414-02	MW-05	4/17/2014	<0.02	0.00165
0414-03	MW-06	4/17/2014	0.22	0.00213
0414-04	MW-07	4/17/2014	<0.02	0.00089
0414-05	MW-12I	4/17/2014	0.089	0.00205
0414-06	MW-13D	4/17/2014	<0.02	0.00301

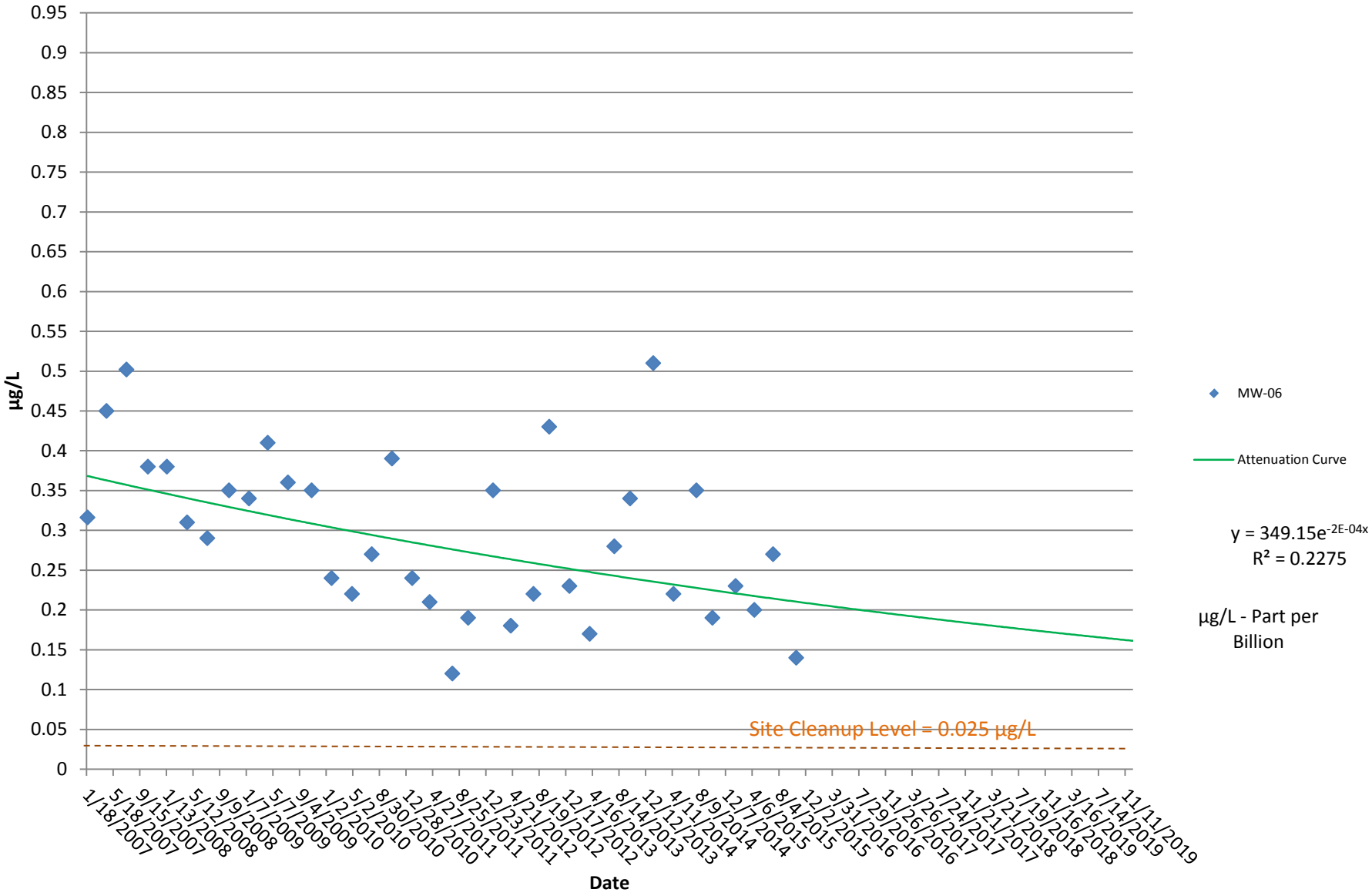
Table D-2. Statistical Data Set (N=20), Hansville Landfill

Sample ID	Location	Date Sampled	Vinyl Chloride (µg/L)	Arsenic (mg/L)
0714-01	MW-05	7/29/2014	<0.02	0.00176
0714-02	MW-06	7/29/2014	0.35	0.0021
0714-03	MW-07	7/29/2014	<0.02	0.00095
0714-04	MW-12I	7/29/2014	0.28	0.00219
0714-05	MW-13D	7/29/2014	<0.02	0.00353
0714-06	MW-14	7/29/2014	0.16	0.016
1014-01	MW-05	10/9/2014	<0.02	0.00194
1014-02	MW-06	10/9/2014	0.19	0.00181
1014-03	MW-07	10/9/2014	<0.02	0.00106
1014-04	MW-12I	10/8/2014	0.23	0.00229
1014-05	MW-13D	10/8/2014	<0.02	0.00346
1014-06	MW-14	10/9/2014	0.14	0.0246
0115-06	MW-05	1/22/2015	<0.02	0.0019
0115-04	MW-06	1/22/2015	0.23	0.00178
0115-03	MW-07	1/22/2015	<0.02	0.00098
0115-01	MW-12I	1/21/2015	0.094	0.00236
0115-02	MW-13D	1/21/2015	<0.02	0.00353
0115-05	MW-14	1/22/2015	0.19	0.0177
0415-01	MW-12I	4/16/2015	0.083	0.00227
0415-02	MW-13D	4/16/2015	<0.02	0.00331
0415-03	MW-14	4/16/2015	0.21	0.0157
0415-04	MW-5	4/16/2015	<0.02	0.00166
0415-05	MW-6	4/16/2015	0.2	0.00173
0415-06	MW-7	4/16/2015	<0.02	0.00088
0715-01	MW-05	7/9/2015	<0.02	0.0016
0715-02	MW-06	7/9/2015	0.27	0.00164
0715-03	MW-07	7/9/2015	<0.02	0.00087
0715-04	MW-12I	7/9/2015	0.19	0.00216
0715-05	MW-13D	7/9/2015	<0.02	0.00327
0715-06	MW-14	7/9/2015	0.17	0.0175
1015-01	MW-05	10/21/2015	<0.02	0.0017
1015-02	MW-06	10/21/2015	0.14	0.0016
1015-03	MW-07	10/21/2015	<0.02	0.0010
1015-04	MW-12I	10/21/2015	0.39	0.0022
1015-05	MW-13D	10/21/2015	<0.02	0.0038
1015-06	MW-14	10/21/2015	0.14	0.0146

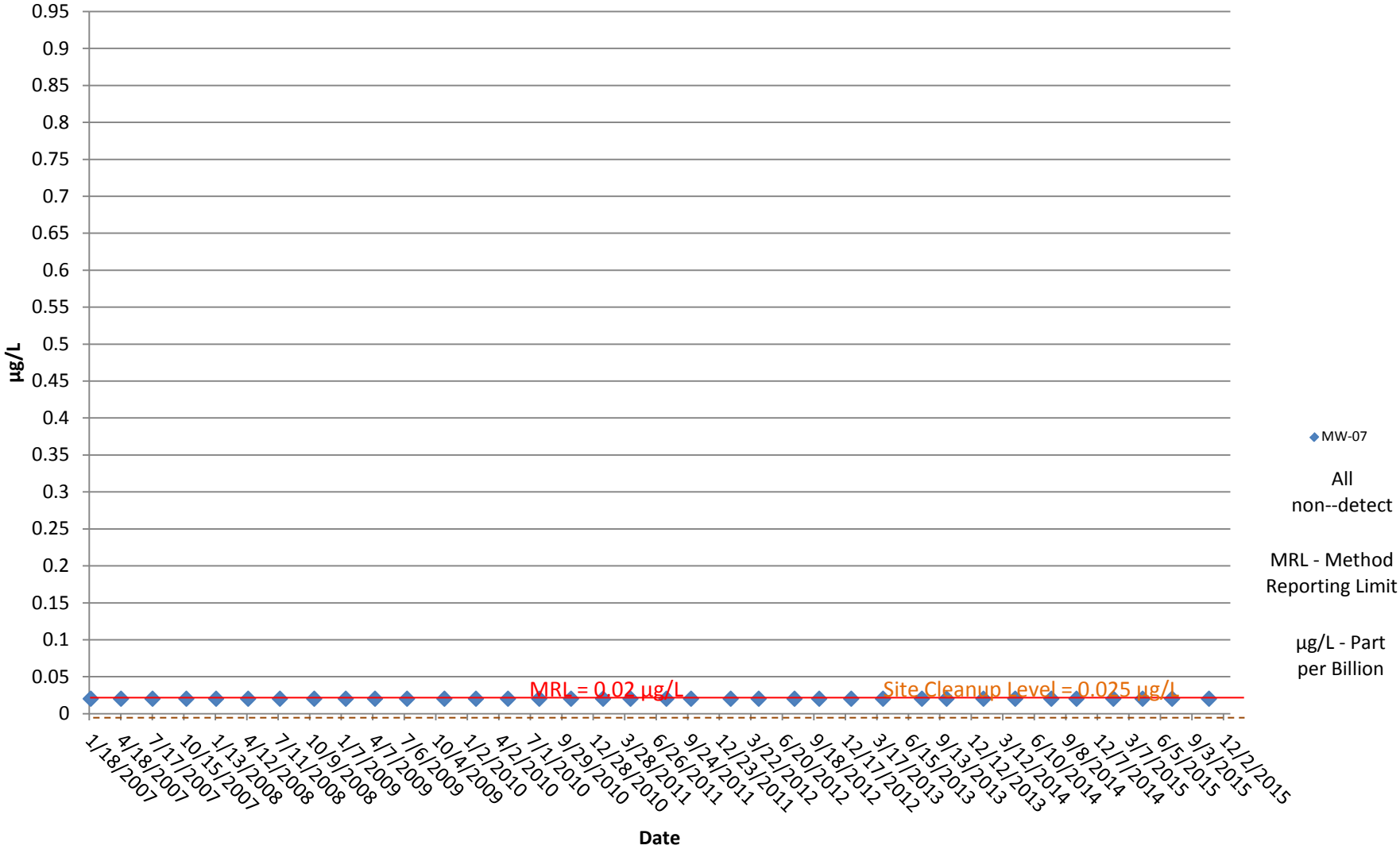
Vinyl Chloride , MW-05
Hansville Landfill



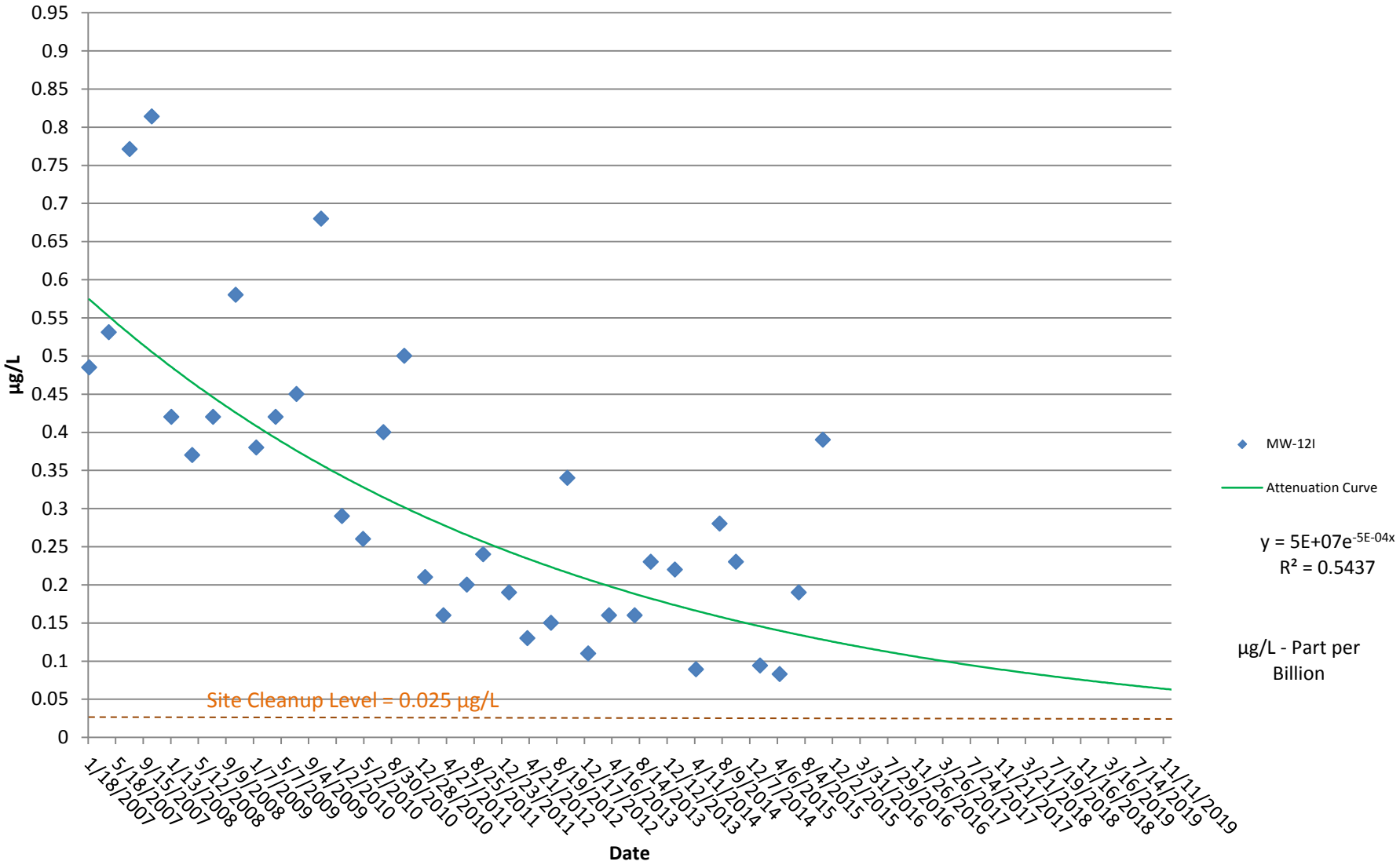
Vinyl Chloride, MW-06
Hansville Landfill



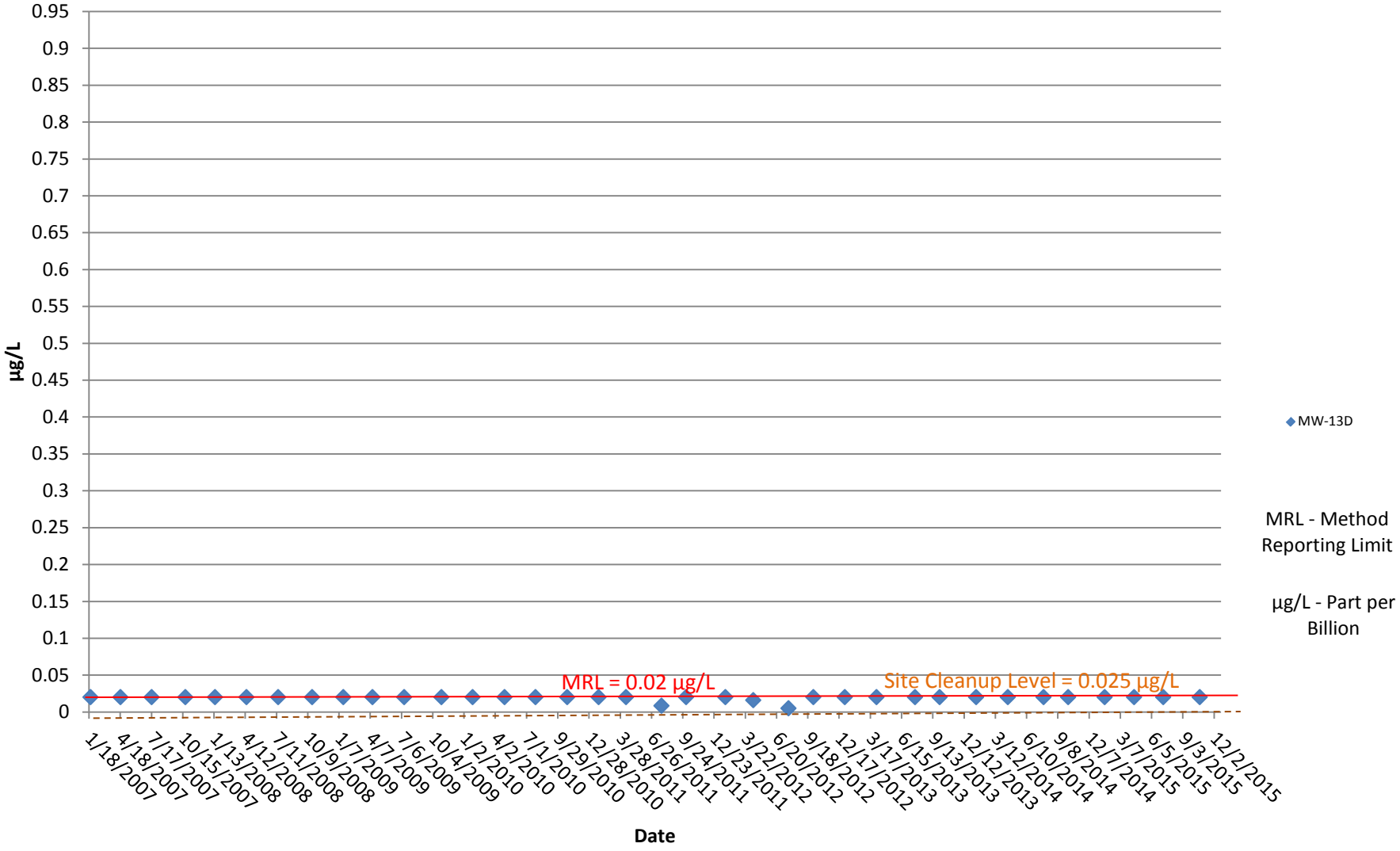
Vinyl Chloride , MW-07
Hansville Landfill



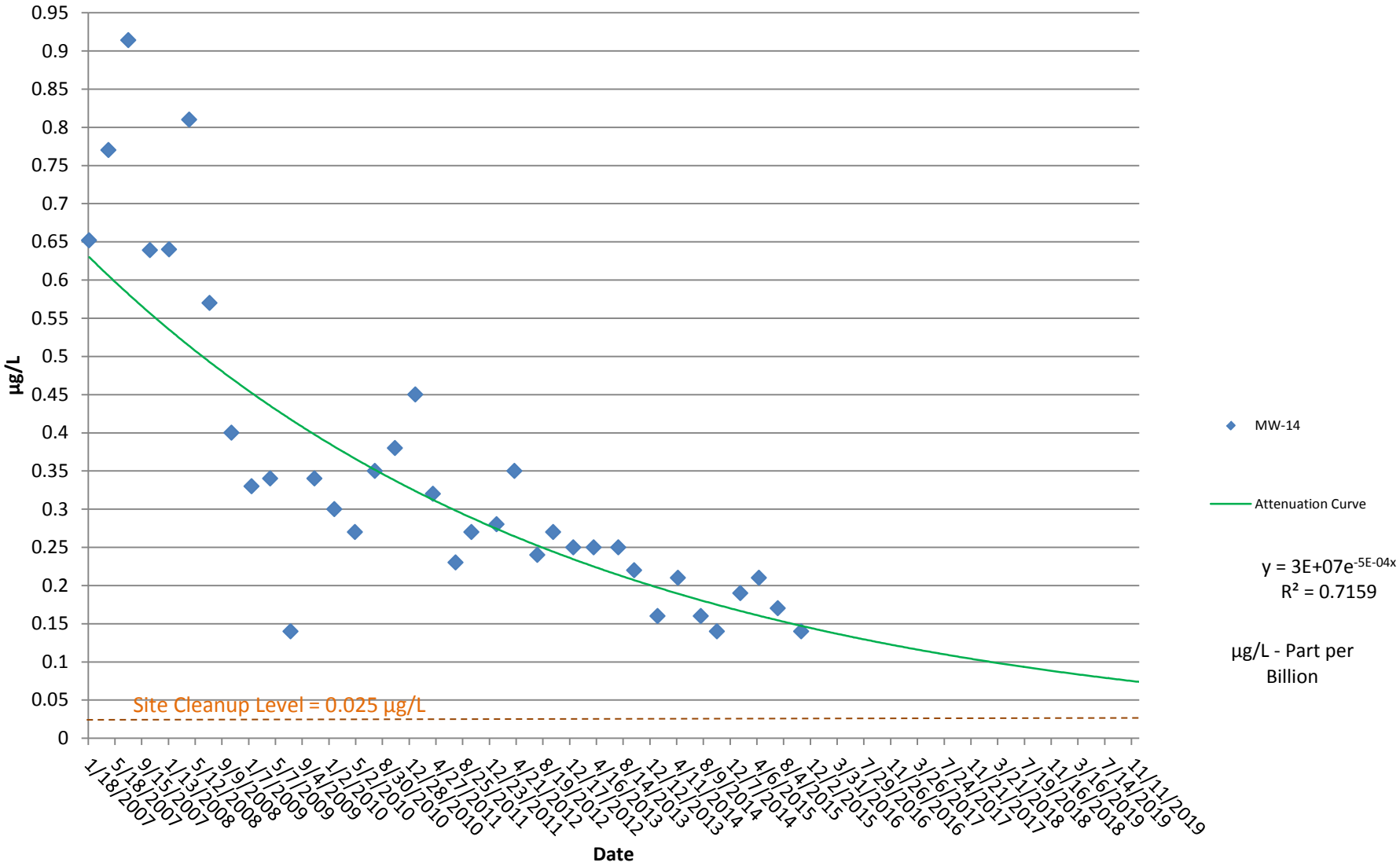
Vinyl Chloride, MW-12I
Hansville Landfill



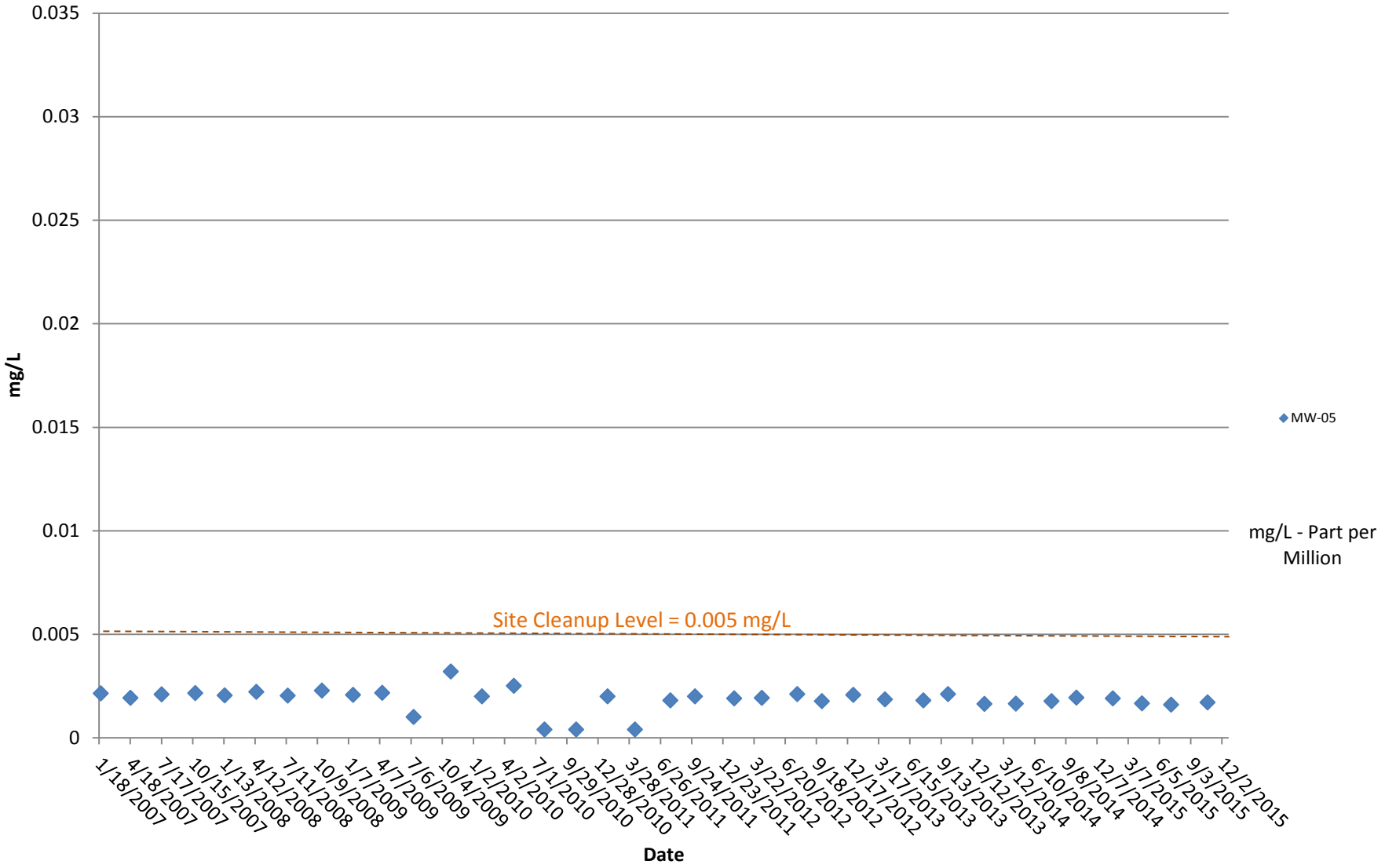
Vinyl Chloride, MW-13D
Hansville Landfill



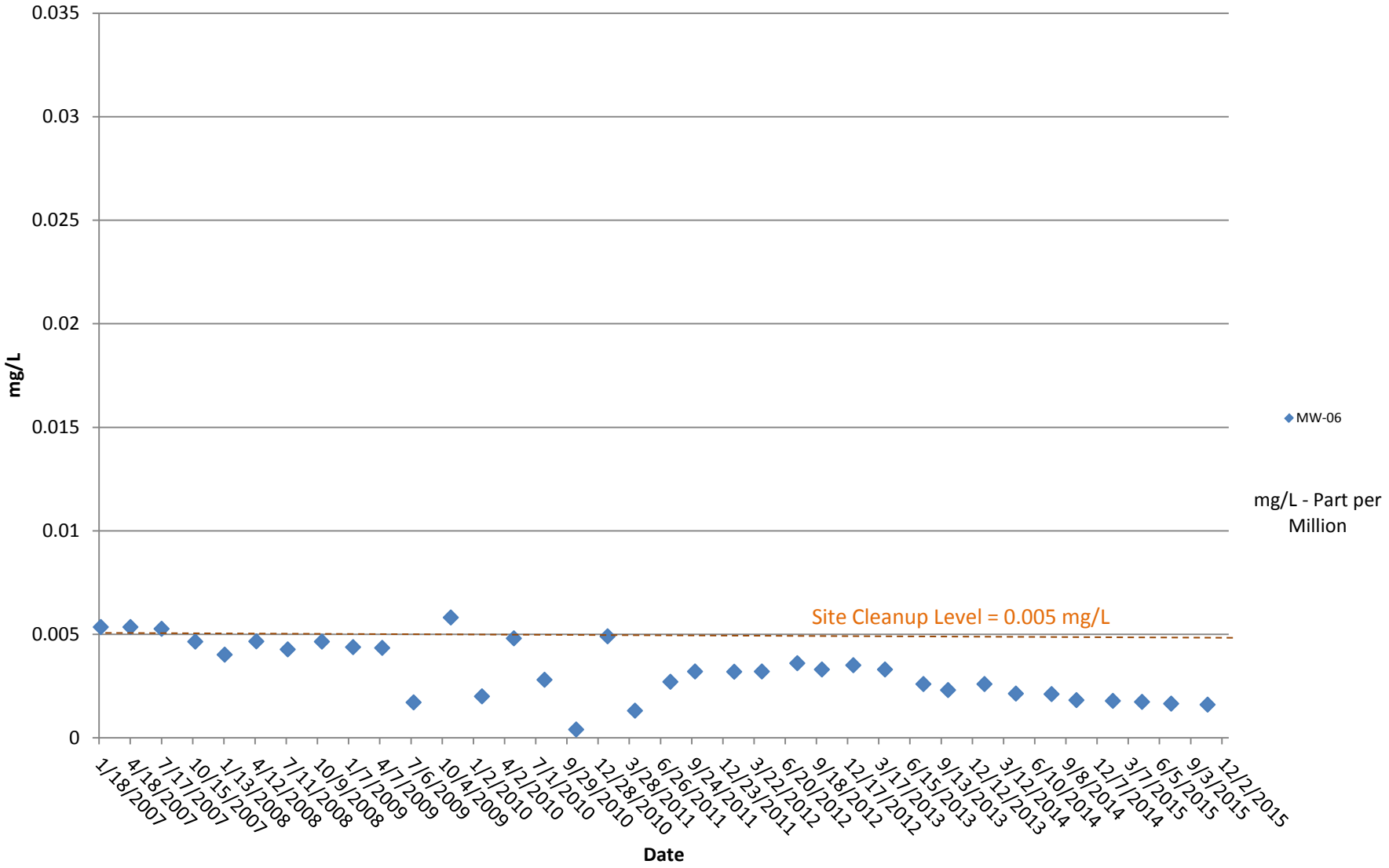
Vinyl Chloride, MW-14
Hansville Landfill



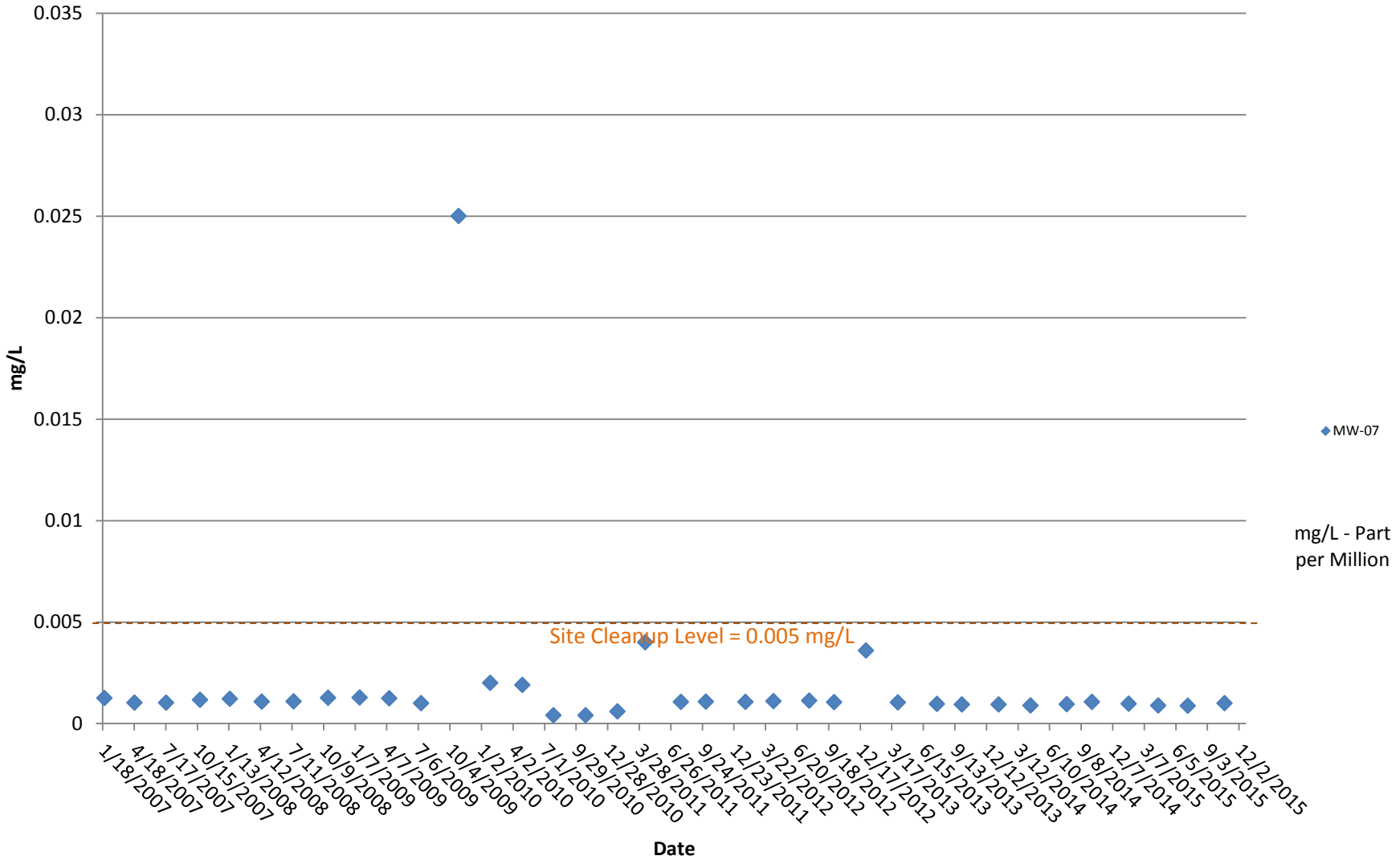
Arsenic, MW-05
Hansville Landfill



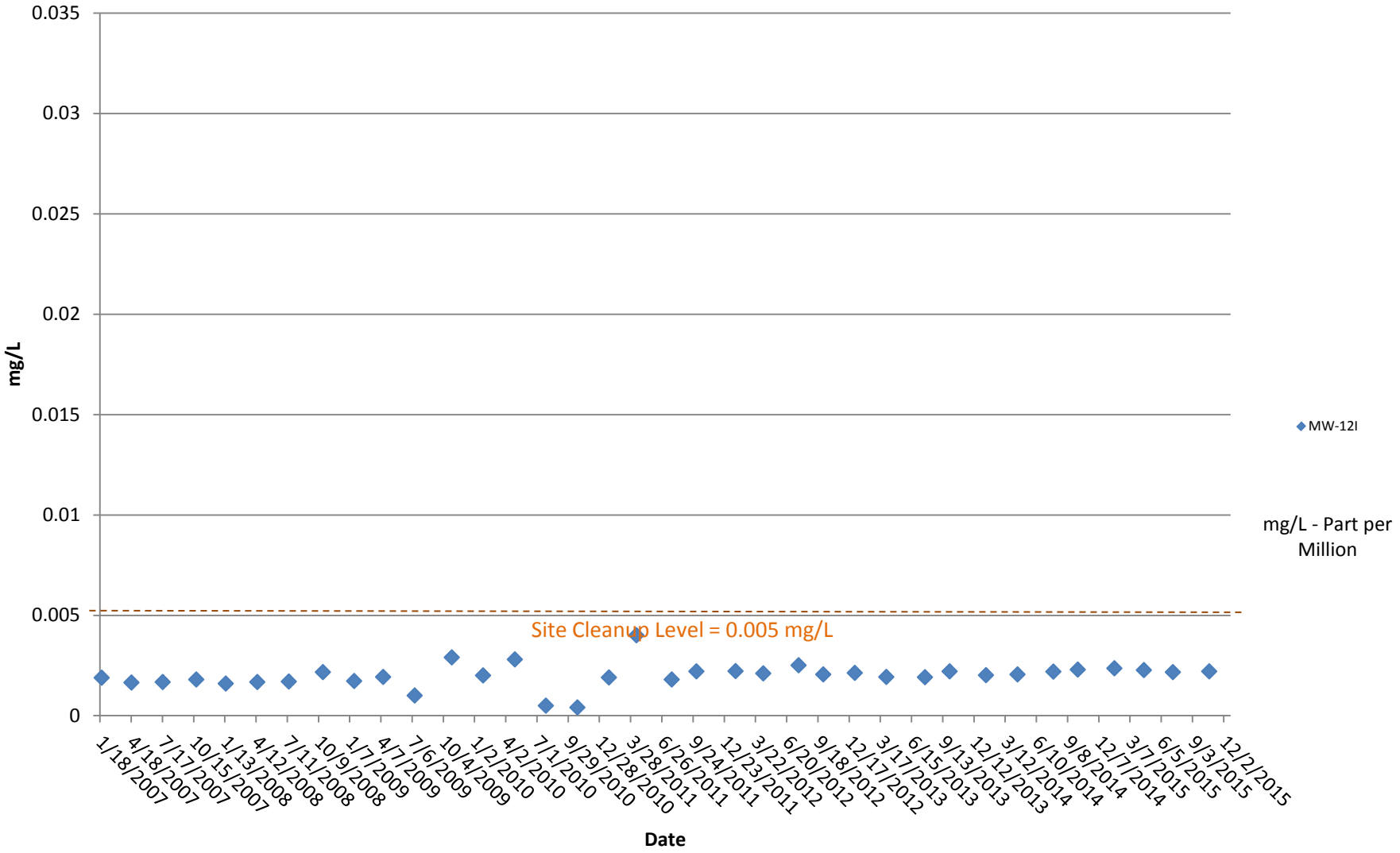
Arsenic, MW-06
Hansville Landfill



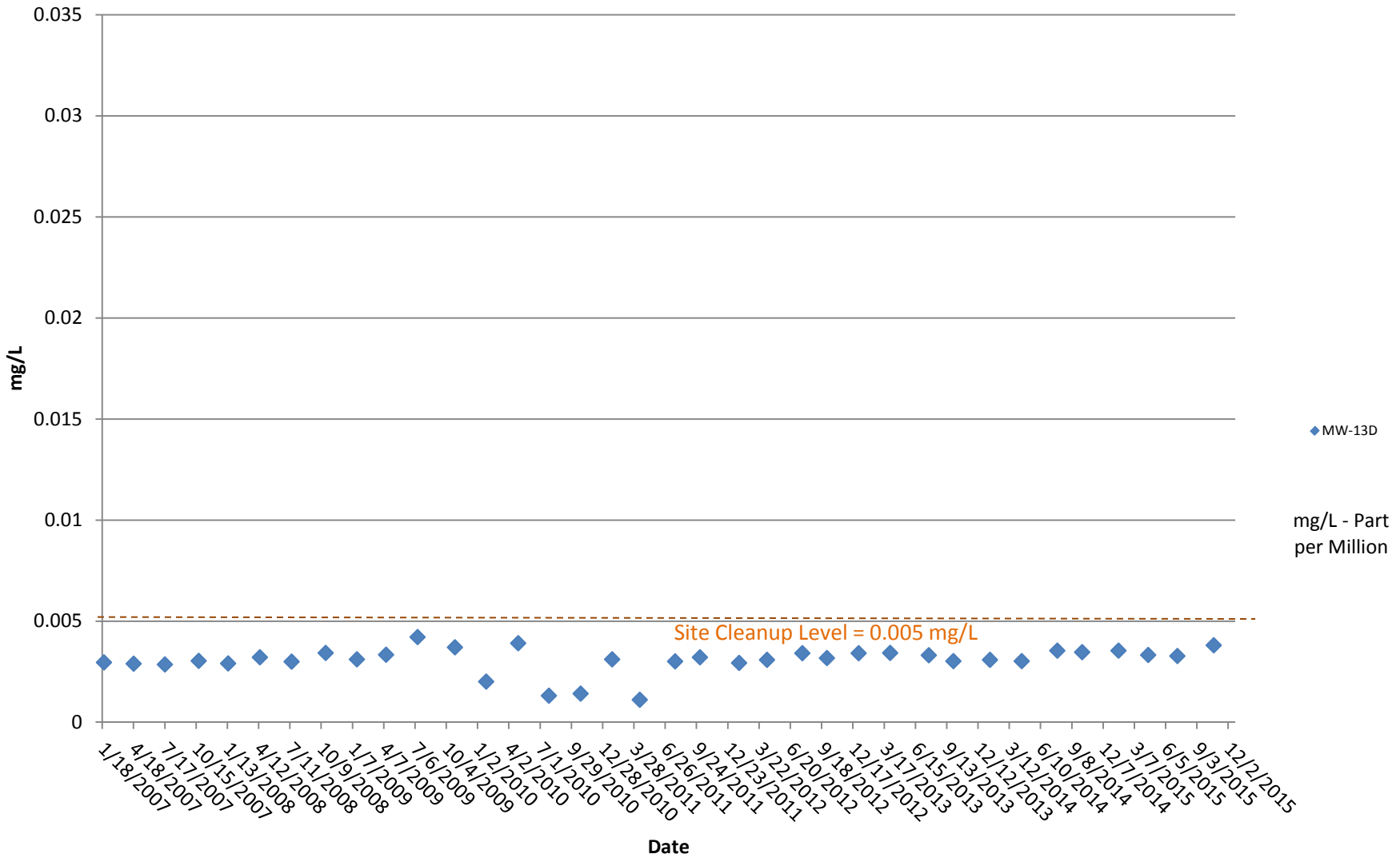
Arsenic, MW-07
Hansville Landfill



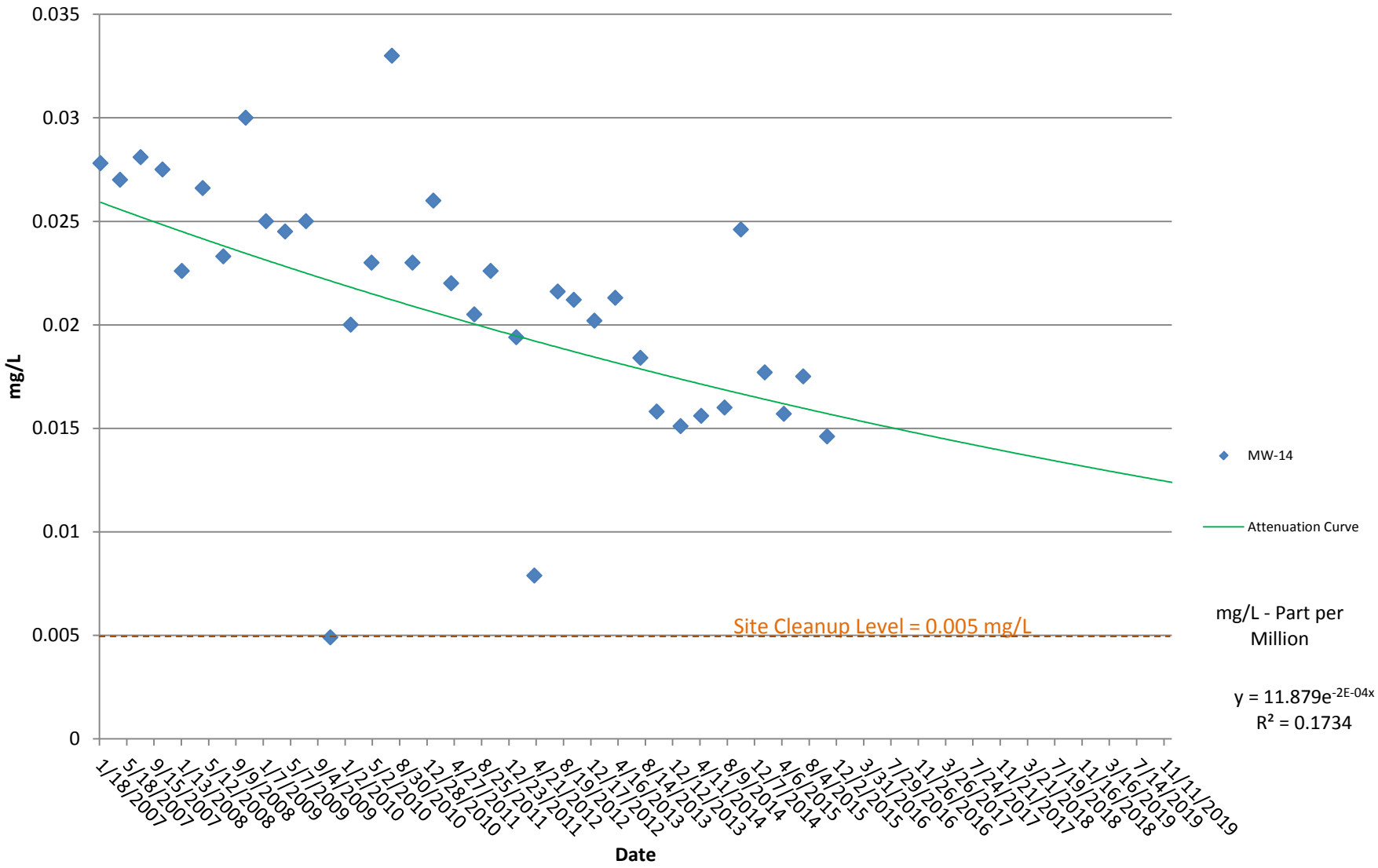
Arsenic, MW-12I
Hansville Landfill



Arsenic, MW-13D
Hansville Landfill



Arsenic, MW-14
Hansville Landfill



Appendix E

Fourth Quarter (October) 2015 Field Sampling Sheets

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SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: SW-1
Sample ID: SW-1
Date: 10/21/2015
Weather: OVERCAST / FOG

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | (Grab) | Other

DTW
TOS
Intake
BOS
Total Depth

Meter: MP-20 (YSI)

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N/A)
Water in Protector? Y (N/A)
Damage? (Y) N

Sample Containers:
(1000 ml Poly) 500 ml HNO3 x2
500 ml Poly 500 ml H2SO4 x2
(250 ml Poly) (40 ml VOA x3) x6
125 ml Poly 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1105	—	11.05	186	10.27	7.89	121.3	1.3	—

Notes / Observations (color, odor, anomalies, etc):

TREE(S) DOWN OVER SAMPLE LOCATION & SUBSTANCIAL ~~TEMP~~ CLEARING REQUIRED

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

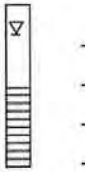
SAMPLER: SAM ADLINGTON
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: SW-4
Sample ID: SW-4
Date: 10/21/2015
Weather: OVERCAST / FOG



DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | (Grab) | Other

Meter: MP-20 (YSI)

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N/A)
Water in Protector? Y (N/A)
Damage? Y (N/A)

Sample Containers:
(1000 ml Poly) 500 ml Poly (250 ml Poly) 125 ml Poly
(500 ml HNO3 x2) (500 ml H2SO4 x2) (40 ml VOA x3 x6) 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1035	—	11.57	338	8.29	7.14	155.8	3.7	—

Notes / Observations (color, odor, anomalies, etc):

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: SAM ADLINGTON
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: SW-06
Sample ID: SW-6
Date: 10/21/2015
Weather: OVERCAST/FOG

DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | (Grab) | Other

Meter: MP-20 (YSI)

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N/A)
Water in Protector? Y (N/A)
Damage? Y (N/A)

Sample Containers:

~~1000 ml Poly~~	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	~~500 ml H2SO4~~ x2	~~40 ml VOA~~ x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1015	—	12.16	119	6.21	7.34	254.2	4.2	—

Notes / Observations (color, odor, anomalies, etc):

LOW FLOW, FOAMY AT DISCHARGE

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: SAM ADDINGTON
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: SW-7
Sample ID: SW-7
Date: 10/21/2015
Weather: OVERCAST/FOG

DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | (Grab) | Other
Meter: MP-20 (YSI)
CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.24 gallons
Refill
Discharge
Pressure
Flow
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? Y (N/A)
Water in Protector? Y (N/A)
Damage? (Y) N

Sample Containers:
(1000 ml Poly) 500 ml Poly (250 ml Poly) 125 ml Poly
(500 ml HNO3 x2) (500 ml H2SO4 x2) (40 ml VOA x3 x6) 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0930	—	11.71	146	8.31	6.59	271.6	3.5	—

Notes / Observations (color, odor, anomalies, etc):

SAMPLED AS FAR UPSTREAM IN CREEK AS SAFE. ~600 FT UPSTREAM FROM TRAILHEAD.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: SAM ADLINGTON
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: MW-5
Sample ID: MW-5
Date: 10/21/13
Weather: overcast

99.4 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 / YSI

CONTROL SETTINGS: (1 ft water = 0.62L; 1L = 0.24 gallons)
Refill
Discharge
Pressure 230 Hz
Flow
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1145	begin purge.							
1150		10.32	131	8.31	7.23	72	1.22	
1155		11.29	132	7.98	7.09	69		
1158		11.47	133	7.91	7.09	71		
1201		11.64	133	7.91	7.08	74	0.93	
1204		11.82	132	7.93	7.07	75		
1207		11.93	133	7.89	7.07	77		
1210		11.98	133	7.88	7.06	78	1.03	

Notes / Observations (color, odor, anomalies, etc):
Started pump at 260 Hz

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: MW-6
Sample ID: MW-6
Date: 10/21/15
Weather: windy

15.00 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 | YSI

CONTROL SETTINGS:
Refill
Discharge
Pressure 203 Hz
Flow

1 ft water = 0.62L
1L = 0.24 gallons
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
950	begin purge							
955		13.76	452	1.30	6.97	113	2.13	
1000		14.39	449	0.30	6.87	76		
1003		14.44	451	0.52	6.88	70		
1006		14.45	449	0.52	6.89	64	1.16	
1009		14.46	451	0.48	6.89	60		
1012		14.57	449	0.54	6.89	56		
1015		14.56	452	0.54	6.89	55	0.83	

Notes / Observations (color, odor, anomalies, etc):

bumped up to ≈ 240 Hz to get flow going

water filled in casing during purge likely from leak from discharge pump connection

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: MW-7
Sample ID: MW-7
Date: 10/21/15
Weather: overcast

86.00 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 / YSI

CONTROL SETTINGS: (1 ft water = 0.62L; 1L = 0.24 gallons)
Refill
Discharge
Pressure 209 Hz
Flow
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? Y (N)
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
9:55	begin	purge						
900		10.44	253	1.63	6.68	96	5.31	
905		11.06	255	1.40	6.68	95		
908		11.25	254	1.40	6.66	94		
911		11.02	257	1.44	6.67	89		
914		11.22	256	1.44	6.64	87	3.09	
917		11.16	254	1.42	6.61	86		
920		11.10	256	1.44	6.60	88	2.48	

Notes / Observations (color, odor, anomalies, etc):
ramp Hz up to ≈ 250 to get flow going.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber (Printed Name) _____ (Signature)

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: MW-12I
Sample ID: MW-12I
Date: 10/21/15
Weather:

10.50 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 YSI

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.24 gallons
Refill
Discharge
Pressure 79 Hz
Flow
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1332	begin	purge						
1334		10.00	156	1.28	7.24	66	0.64	
1339		10.27	186	0.17	7.00	53		
1342		10.30	187	0.13	6.99	48	2.28	
1345		10.32	187	0.10	7.00	46		
1348		10.33	187	0.10	6.99	44		
1351		10.32	187	0.09	7.00	42		
1354		10.32	186	0.08	7.00	41	2.23	

Notes / Observations (color, odor, anomalies, etc):

Start Hz higher.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: MW-13D
Sample ID: MW-13D
Date: 10/21/15
Weather: Overcast

11.80 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other
Meter: MP-20 / YSI

CONTROL SETTINGS: (1 ft water = 0.62L; 1L = 0.24 gallons)
Refill
Discharge
Pressure 89 Hz
Flow
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1240	Begin Purge							
1245		10.48	185	0.88	7.30	41	0.37	
1250		10.60	187	0.32	7.35	13		
1253		10.70	189	0.13	7.38	-10		
1256		10.71	189	0.10	7.38	-17		
1259		10.71	189	0.09	7.38	-25	2.63	
1302		10.72	188	0.09	7.38	-30		
1305		10.71	190	0.08	7.38	-34	1.92	

Notes / Observations (color, odor, anomalies, etc):

ramp Hz up to ≈ 200 to get going.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Gaitzer
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.04
Site: Hansville Landfill
Well ID: MW-14
Sample ID: MW-14
Date: 10/21/15
Weather: overcast

33.00 DTW
TOS
Intake
BOS
Total Depth

Sampling Method: Dedicated | 1.75" QED SamplePro | Bail | Peristaltic | Grab | Other

Meter: MP-20 YSI

CONTROL SETTINGS: 1 ft water = 0.62L 1L = 0.24 gallons

Refill
Discharge
Pressure 215 Hz
Flow

One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1050		11.96	315	0.93	6.92	-83	0.67	
1055		12.66	271	0.17	6.81	-88		
1058		12.68	270	0.14	6.80	-82		
1101		12.69	269	0.13	6.80	-80		
1104		12.69	267	0.12	6.81	-80		
1107		12.70	270	0.11	6.80	-78	0.70	
1110		12.70	269	0.10	6.80	-78	0.71	

Notes / Observations (color, odor, anomalies, etc):

dup taken as-
MW-2000
@ 1130

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Sam Graber
Printed Name

Signature

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	~~8~~ 10/21/2015					
Time	0520					
Weather (sky or precip, temp)	Lt. clouds, no precip					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	~~447~~ ~~445~~	4.01	7.00	100% or ~8.5	~~1000, 10, 0.2~~ 800, 100, 20, <0.1	
Pre-Cal Reading	480	3.87	7.02	7.96	799, 99.5, 20.1, 0.7	
Post Cal Reading	448	4.01	7.01	—		
Descrepancy	1	—	0.01			
Calib. Successful?	Y	Y	Y	Y	Y	
Calibration by	SAM ADLINGTON					
Instrument Type, ID	MP20 / YSI 556				MicoTPW / HACH2000	
Calibration Location	Bellevue WA office					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	10/21/2015					
Time	0510					
Weather (sky or precip, temp)	Lt. clouds, no precip					
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	~~447~~ ~~445~~	4.01	7.00	100% or ~8.5	1000, 10, 0.2 ~~800, 100, 20, <0.1~~	
Pre-Cal Reading	494	4.11	6.97	8.63	1002, 9.87, 0.01	
Post Cal Reading	449	4.00	7.00			
Descrepancy	2	0.01	—	—		
Calib. Successful?	Y	Y	Y	Y		
Calibration by	Sam Adlington					
Instrument Type, ID		MP20 / YSI 556			MicoTPW / HACH2000	
Calibration Location	Bellevue WA office					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

Appendix F

Fourth Quarter (October) 2015 Laboratory Data Reports

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-75804-1

Job Description: Hansville Landfill

For:
SCS Engineers
2405 140th Avenue NE
Suite 107
Bellevue, WA 98005-1877

Attention: Mr. Dan Venchiarutti

Approved for release.
Betsy A Sara
Project Manager II
11/5/2015 8:13 AM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
11/05/2015

cc: Mr. Greg Helland

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: SCS Engineers

Project: Hansville Landfill

Report Number: 280-75804-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receiving

The samples were received on 10/22/2015; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 0.9º C, 2.0º C and 2.5º C.

The analyses were not checked on the chain of custody. The samples were logged per project setup and volume received. The client was notified on 10/22/2015.

Holding Times

All holding times were within established control limits.

Method Blanks

All Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

The percent recoveries and/or relative percent difference of the MS/MSD performed on sample MW-6 were outside control limits for Dissolved Manganese Method 6020 because the sample concentration was greater than four times the spike amount. Because the corresponding Laboratory Control Sample and the Method Blank sample were within control limits, no corrective action was taken.

Sample SW-7 was selected to fulfill the laboratory batch quality control requirements for Method 350.1. Analysis of the laboratory generated MS/MSD for this sample exhibited recoveries of Ammonia above the upper control limit indicating the possible presence of a matrix interference.

All other MS and MSD samples were within established control limits.

General Comments

The analysis for Method 8260C SIM was performed by TestAmerica Buffalo. Their address and phone number are:
TestAmerica Buffalo
10 Hazelwood Drive, Suite 106
Amherst, NY 14228
716-691-2600

The analysis for Dissolved Arsenic Method 200.8 was performed by ARI. Their address and phone number are:
Analytical Resources, Inc.
4611 S. 134th Place
Tukwila, WA 98168-3240
206-695-6200

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-75804-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-75804-1	**MW-7**					
Chloride		1.2		1.0	mg/L	300.0
Sulfate		3.6		1.0	mg/L	300.0
Total Alkalinity		150		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		150		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.8		1.0	mg/L	SM 5310B
280-75804-2	**MW-6**					
Vinyl chloride		0.14		0.020	ug/L	8260C SIM
Chloride		24		1.0	mg/L	300.0
Nitrate		5.5		0.50	mg/L	300.0
Sulfate		32		1.0	mg/L	300.0
Nitrite		0.62		0.50	mg/L	300.0
Total Alkalinity		190		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		190		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.5		1.0	mg/L	SM 5310B
Dissolved						
Manganese		540		1.0	ug/L	6020
280-75804-3	**MW-14**					
Vinyl chloride		0.13		0.020	ug/L	8260C SIM
Chloride		14		1.0	mg/L	300.0
Sulfate		17		1.0	mg/L	300.0
Total Alkalinity		140		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		140		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.2		1.0	mg/L	SM 5310B
Dissolved						
Manganese		2500		1.0	ug/L	6020
280-75804-4	**MW-20DD**					
Vinyl chloride		0.14		0.020	ug/L	8260C SIM
Chloride		14		1.0	mg/L	300.0
Sulfate		18		1.0	mg/L	300.0
Total Alkalinity		130		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		130		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.2		1.0	mg/L	SM 5310B
Dissolved						
Manganese		2300		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-75804-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-75804-5	**MW-5**					
Chloride		2.8		1.0	mg/L	300.0
Nitrate		0.85		0.50	mg/L	300.0
Sulfate		9.1		1.0	mg/L	300.0
Total Alkalinity		63		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		63		5.0	mg/L	SM 2320B
280-75804-6	**SW-7**					
Chloride		4.0		1.0	mg/L	300.0
Sulfate		10		1.0	mg/L	300.0
Total Alkalinity		76		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		76		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		7.8		1.0	mg/L	SM 5310B
Dissolved						
Manganese		8.2		1.0	ug/L	6020
280-75804-7	**SW-6**					
Chloride		4.3		1.0	mg/L	300.0
Sulfate		12		1.0	mg/L	300.0
Ammonia as N		0.031		0.030	mg/L	350.1
Total Alkalinity		56		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		56		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		25		1.0	mg/L	SM 5310B
Dissolved						
Manganese		71		1.0	ug/L	6020
280-75804-8	**SW-4**					
Chloride		17		1.0	mg/L	300.0
Nitrate		1.0		0.50	mg/L	300.0
Sulfate		26		1.0	mg/L	300.0
Total Alkalinity		180		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		180		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		7.5		1.0	mg/L	SM 5310B
Dissolved						
Manganese		36		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-75804-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-75804-9	**SW-1**					
Chloride		4.5		1.0	mg/L	300.0
Nitrate		1.8		0.50	mg/L	300.0
Sulfate		12		1.0	mg/L	300.0
Total Alkalinity		93		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		93		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.0		1.0	mg/L	SM 5310B
280-75804-10	**MW-13D**					
Chloride		6.3		1.0	mg/L	300.0
Sulfate		18		1.0	mg/L	300.0
Total Alkalinity		85		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		85		5.0	mg/L	SM 2320B
Dissolved						
Manganese		29		1.0	ug/L	6020
280-75804-11	**MW-12I**					
Vinyl chloride		0.39		0.020	ug/L	8260C SIM
Chloride		3.3		1.0	mg/L	300.0
Sulfate		7.7		1.0	mg/L	300.0
Total Alkalinity		100		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		100		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.4		1.0	mg/L	SM 5310B
Dissolved						
Manganese		59		1.0	ug/L	6020

METHOD SUMMARY

Client: SCS Engineers Job Number: 280-75804-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Metals (ICP/MS)	TAL DEN	SW846 6020	
Preparation, Total Recoverable or Dissolved Metals	TAL DEN		SW846 3005A
Sample Filtration, Field			FIELD_FLTRD
Anions, Ion Chromatography	TAL DEN	MCAWW 300.0	
Anions, Ion Chromatography	TAL DEN	MCAWW 300.0	
Sample Filtration, Field			FIELD_FLTRD
Nitrogen, Ammonia	TAL DEN	MCAWW 350.1	
Alkalinity	TAL DEN	SM SM 2320B	
Organic Carbon, Total (TOC)	TAL DEN	SM SM 5310B	
Volatile Organic Compounds (GC/MS)	TAL BUF	SW846 8260C SIM	
Purge and Trap	TAL BUF		SW846 5030C
General Sub Contract Method	SC0056	Subcontract	

Lab References:

SC0056 = Analytical Resources, Inc

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver

Method References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: SCS Engineers Job Number: 280-75804-1

Method	Analyst	Analyst ID
SW846 8260C SIM	Cwiklinski, Charles D	CDC
SW846 6020	Trudell, Lynn-Anne M	LMT
MCAWW 300.0	Benson, Alex F	AFB
MCAWW 300.0	Phan, Thu L	TLP
MCAWW 350.1	Lawrence, Caitlyn M	CML
SM SM 2320B	Simons, Nicole A	NAS
SM SM 5310B	Jewell, Connie C	CCJ

SAMPLE SUMMARY

Client: SCS Engineers Job Number: 280-75804-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-75804-1	MW-7	Water	10/21/2015 0920	10/22/2015 0930
280-75804-2	MW-6	Water	10/21/2015 1015	10/22/2015 0930
280-75804-3	MW-14	Water	10/21/2015 1110	10/22/2015 0930
280-75804-4	MW-20DD	Water	10/21/2015 1130	10/22/2015 0930
280-75804-5	MW-5	Water	10/21/2015 1210	10/22/2015 0930
280-75804-6	SW-7	Water	10/21/2015 0930	10/22/2015 0930
280-75804-7	SW-6	Water	10/21/2015 1015	10/22/2015 0930
280-75804-8	SW-4	Water	10/21/2015 1035	10/22/2015 0930
280-75804-9	SW-1	Water	10/21/2015 1105	10/22/2015 0930
280-75804-10	MW-13D	Water	10/21/2015 1305	10/22/2015 0930
280-75804-11	MW-12I	Water	10/21/2015 1354	10/22/2015 0930
280-75804-12TB	TRIP BLANK	Water	10/21/2015 0000	10/22/2015 0930

SAMPLE RESULTS

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-7

Lab Sample ID: 280-75804-1 Date Sampled: 10/21/2015 0920
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6968.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0028			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0028				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	86		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-6

Lab Sample ID: 280-75804-2 Date Sampled: 10/21/2015 1015
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6969.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0053			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0053				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.14		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	86		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-14

Lab Sample ID: 280-75804-3 Date Sampled: 10/21/2015 1110
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6970.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0117			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0117				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.13		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	104		50 - 150
TBA-d9 (Surr)	90		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-20DD

Lab Sample ID: 280-75804-4 Date Sampled: 10/21/2015 1130
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6971.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0141			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0141				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.14		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	72		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-5

Lab Sample ID: 280-75804-5 Date Sampled: 10/21/2015 1210
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6972.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0205			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0205				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	104		50 - 150
TBA-d9 (Surr)	93		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-7

Lab Sample ID: 280-75804-6 Date Sampled: 10/21/2015 0930
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6973.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0229			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0229				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	102		50 - 150
TBA-d9 (Surr)	78		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-6

Lab Sample ID: 280-75804-7 Date Sampled: 10/21/2015 1015
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6974.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0253			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0253				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	76		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-4

Lab Sample ID: 280-75804-8 Date Sampled: 10/21/2015 1035
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6975.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0317			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0317				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	102		50 - 150
TBA-d9 (Surr)	74		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-1

Lab Sample ID: 280-75804-9 Date Sampled: 10/21/2015 1105
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6976.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0341			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0341				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	78		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-13D

Lab Sample ID: 280-75804-10 Date Sampled: 10/21/2015 1305
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6977.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0405			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0405				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	105		50 - 150
TBA-d9 (Surr)	83		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-12I

Lab Sample ID: 280-75804-11 Date Sampled: 10/21/2015 1354
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6978.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0429			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0429				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.39		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	81		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 280-75804-12TB Date Sampled: 10/21/2015 0000
Client Matrix: Water Date Received: 10/22/2015 0930

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J6979.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/27/2015 0453			Final Weight/Volume:	25 mL
Prep Date:	10/27/2015 0453				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	ND		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	103		50 - 150
TBA-d9 (Surr)	99		50 - 150

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-7

Lab Sample ID: 280-75804-1 Date Sampled: 10/21/2015 0920
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	218SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0330			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	ND		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-6

Lab Sample ID: 280-75804-2 Date Sampled: 10/21/2015 1015
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	219SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0334			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	540		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-14

Lab Sample ID: 280-75804-3 Date Sampled: 10/21/2015 1110
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	226SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0359			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	2500		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-20DD

Lab Sample ID: 280-75804-4 Date Sampled: 10/21/2015 1130
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	227SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0403			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	2300		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-5

Lab Sample ID: 280-75804-5 Date Sampled: 10/21/2015 1210
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	228SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0407			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	ND		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-7

Lab Sample ID: 280-75804-6 Date Sampled: 10/21/2015 0930
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	229SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0410			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	8.2		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-6

Lab Sample ID: 280-75804-7 Date Sampled: 10/21/2015 1015
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	230SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0414			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	71		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-4

Lab Sample ID: 280-75804-8 Date Sampled: 10/21/2015 1035
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	231SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0417			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	36		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: SW-1

Lab Sample ID: 280-75804-9 Date Sampled: 10/21/2015 1105
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	232SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0421			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	ND		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-13D

Lab Sample ID: 280-75804-10 Date Sampled: 10/21/2015 1305
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	233SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0425			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	29		1.0

Client: SCS Engineers Job Number: 280-75804-1

Client Sample ID: MW-12I

Lab Sample ID: 280-75804-11 Date Sampled: 10/21/2015 1354
Client Matrix: Water Date Received: 10/22/2015 0930

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-301480	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-300800	Lab File ID:	234SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0428			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	59		1.0

General Chemistry

Client Sample ID: **MW-7**

Lab Sample ID: 280-75804-1 Date Sampled: 10/21/2015 0920
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	1.2		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1552					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1552					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1613					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1552					
Sulfate	3.6		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1552					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1429					
Total Alkalinity	150		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1341					
Bicarbonate Alkalinity	150		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1341					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1341					
Total Organic Carbon - Average	1.8		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 1905					

General Chemistry

Client Sample ID: MW-6

Lab Sample ID: 280-75804-2 Date Sampled: 10/21/2015 1015
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	24		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1703					
Nitrate	5.5		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1703					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1630					
Nitrite	0.62		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1703					
Sulfate	32		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1703					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1431					
Total Alkalinity	190		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1350					
Bicarbonate Alkalinity	190		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1350					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1350					
Total Organic Carbon - Average	1.5		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 1921					

General Chemistry

Client Sample ID: MW-14

Lab Sample ID: 280-75804-3 Date Sampled: 10/21/2015 1110
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	14		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1721					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1721					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1647					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1721					
Sulfate	17		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1721					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1433					
Total Alkalinity	140		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1354					
Bicarbonate Alkalinity	140		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1354					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1354					
Total Organic Carbon - Average	2.2		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 1937					

General Chemistry

Client Sample ID: MW-20DD

Lab Sample ID: 280-75804-4 Date Sampled: 10/21/2015 1130
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	14		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1739					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1739					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1737					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1739					
Sulfate	18		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1739					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1435					
Total Alkalinity	130		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1358					
Bicarbonate Alkalinity	130		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1358					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1358					
Total Organic Carbon - Average	2.2		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2026					

General Chemistry

Client Sample ID: MW-5

Lab Sample ID: 280-75804-5 Date Sampled: 10/21/2015 1210
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	2.8		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1756					
Nitrate	0.85		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1756					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1754					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1756					
Sulfate	9.1		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1756					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1437					
Total Alkalinity	63		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1403					
Bicarbonate Alkalinity	63		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1403					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1403					
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2042					

General Chemistry

Client Sample ID: SW-7

Lab Sample ID: 280-75804-6 Date Sampled: 10/21/2015 0930
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	4.0		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1814					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1814					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1811					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1814					
Sulfate	10		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1814					
Ammonia as N	ND	F1	mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1439					
Total Alkalinity	76		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1413					
Bicarbonate Alkalinity	76		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1413					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1413					
Total Organic Carbon - Average	7.8		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2058					

General Chemistry

Client Sample ID: SW-6

Lab Sample ID: 280-75804-7 Date Sampled: 10/21/2015 1015
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	4.3		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1832					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1832					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1827					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1832					
Sulfate	12		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1832					
Ammonia as N	0.031		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1459					
Total Alkalinity	56		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1418					
Bicarbonate Alkalinity	56		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1418					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1418					
Total Organic Carbon - Average	25		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2115					

General Chemistry

Client Sample ID: SW-4

Lab Sample ID: 280-75804-8 Date Sampled: 10/21/2015 1035
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	17		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1925					
Nitrate	1.0		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1925					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1844					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1925					
Sulfate	26		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1925					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1501					
Total Alkalinity	180		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1408					
Bicarbonate Alkalinity	180		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1408					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1408					
Total Organic Carbon - Average	7.5		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2133					

General Chemistry

Client Sample ID: SW-1

Lab Sample ID: 280-75804-9 Date Sampled: 10/21/2015 1105
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	4.5		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1943					
Nitrate	1.8		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1943					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1901					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 1943					
Sulfate	12		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 1943					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1503					
Total Alkalinity	93		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1423					
Bicarbonate Alkalinity	93		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1423					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1423					
Total Organic Carbon - Average	2.0		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2254					

General Chemistry

Client Sample ID: **MW-13D**

Lab Sample ID: 280-75804-10 Date Sampled: 10/21/2015 1305
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	6.3		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 2000					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 2000					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1918					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 2000					
Sulfate	18		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 2000					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1505					
Total Alkalinity	85		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1436					
Bicarbonate Alkalinity	85		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1436					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1436					
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/26/2015 2342					

General Chemistry

Client Sample ID: MW-12I

Lab Sample ID: 280-75804-11 Date Sampled: 10/21/2015 1354
Client Matrix: Water Date Received: 10/22/2015 0930

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	3.3		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 2018					
Nitrate	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 2018					
Orthophosphate as P-Dissolved	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300532	Analysis Date: 10/22/2015 1935					
Nitrite	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-300528	Analysis Date: 10/22/2015 2018					
Sulfate	7.7		mg/L	1.0	1.0	300.0
Analysis Batch: 280-300529	Analysis Date: 10/22/2015 2018					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-301574	Analysis Date: 10/28/2015 1507					
Total Alkalinity	100		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1441					
Bicarbonate Alkalinity	100		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1441					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-300904	Analysis Date: 10/23/2015 1441					
Total Organic Carbon - Average	2.4		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-301213	Analysis Date: 10/27/2015 0032					

DATA REPORTING QUALIFIERS

Client: SCS Engineers Job Number: 280-75804-1

Lab Section	Qualifier	Description
Metals		
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
General Chemistry		
	F1	MS and/or MSD Recovery is outside acceptance limits.

QUALITY CONTROL RESULTS

Client: SCS Engineers Job Number: 280-75804-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:480-271232					
LCS 480-271232/5	Lab Control Sample	T	Water	8260C SIM	
LCSD 480-271232/6	Lab Control Sample Duplicate	T	Water	8260C SIM	
MB 480-271232/8	Method Blank	T	Water	8260C SIM	
280-75804-1	MW-7	T	Water	8260C SIM	
280-75804-2	MW-6	T	Water	8260C SIM	
280-75804-3	MW-14	T	Water	8260C SIM	
280-75804-4	MW-20DD	T	Water	8260C SIM	
280-75804-5	MW-5	T	Water	8260C SIM	
280-75804-6	SW-7	T	Water	8260C SIM	
280-75804-7	SW-6	T	Water	8260C SIM	
280-75804-8	SW-4	T	Water	8260C SIM	
280-75804-9	SW-1	T	Water	8260C SIM	
280-75804-10	MW-13D	T	Water	8260C SIM	
280-75804-11	MW-12I	T	Water	8260C SIM	
280-75804-12TB	TRIP BLANK	T	Water	8260C SIM	

Report Basis
T = Total

Client: SCS Engineers Job Number: 280-75804-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-300800					
LCS 280-300800/2-A	Lab Control Sample	R	Water	3005A	
MB 280-300800/1-A	Method Blank	R	Water	3005A	
280-75804-1	MW-7	D	Water	3005A	
280-75804-2	MW-6	D	Water	3005A	
280-75804-2MS	Matrix Spike	D	Water	3005A	
280-75804-2MSD	Matrix Spike Duplicate	D	Water	3005A	
280-75804-3	MW-14	D	Water	3005A	
280-75804-4	MW-20DD	D	Water	3005A	
280-75804-5	MW-5	D	Water	3005A	
280-75804-6	SW-7	D	Water	3005A	
280-75804-7	SW-6	D	Water	3005A	
280-75804-8	SW-4	D	Water	3005A	
280-75804-9	SW-1	D	Water	3005A	
280-75804-10	MW-13D	D	Water	3005A	
280-75804-11	MW-12I	D	Water	3005A	
Analysis Batch:280-301480					
LCS 280-300800/2-A	Lab Control Sample	R	Water	6020	280-300800
MB 280-300800/1-A	Method Blank	R	Water	6020	280-300800
280-75804-1	MW-7	D	Water	6020	280-300800
280-75804-2	MW-6	D	Water	6020	280-300800
280-75804-2MS	Matrix Spike	D	Water	6020	280-300800
280-75804-2MSD	Matrix Spike Duplicate	D	Water	6020	280-300800
280-75804-3	MW-14	D	Water	6020	280-300800
280-75804-4	MW-20DD	D	Water	6020	280-300800
280-75804-5	MW-5	D	Water	6020	280-300800
280-75804-6	SW-7	D	Water	6020	280-300800
280-75804-7	SW-6	D	Water	6020	280-300800
280-75804-8	SW-4	D	Water	6020	280-300800
280-75804-9	SW-1	D	Water	6020	280-300800
280-75804-10	MW-13D	D	Water	6020	280-300800
280-75804-11	MW-12I	D	Water	6020	280-300800

Report Basis
D = Dissolved
R = Total Recoverable

Client: SCS Engineers Job Number: 280-75804-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-300528					
LCS 280-300528/4	Lab Control Sample	T	Water	300.0	
LCSD 280-300528/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-300528/6	Method Blank	T	Water	300.0	
280-75804-1	MW-7	T	Water	300.0	
280-75804-1DU	Duplicate	T	Water	300.0	
280-75804-1MS	Matrix Spike	T	Water	300.0	
280-75804-1MSD	Matrix Spike Duplicate	T	Water	300.0	
280-75804-2	MW-6	T	Water	300.0	
280-75804-3	MW-14	T	Water	300.0	
280-75804-4	MW-20DD	T	Water	300.0	
280-75804-5	MW-5	T	Water	300.0	
280-75804-6	SW-7	T	Water	300.0	
280-75804-7	SW-6	T	Water	300.0	
280-75804-8	SW-4	T	Water	300.0	
280-75804-9	SW-1	T	Water	300.0	
280-75804-10	MW-13D	T	Water	300.0	
280-75804-11	MW-12I	T	Water	300.0	
280-75804-11DU	Duplicate	T	Water	300.0	
280-75804-11MS	Matrix Spike	T	Water	300.0	
280-75804-11MSD	Matrix Spike Duplicate	T	Water	300.0	
Analysis Batch:280-300529					
LCS 280-300529/4	Lab Control Sample	T	Water	300.0	
LCSD 280-300529/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-300529/6	Method Blank	T	Water	300.0	
280-75804-1	MW-7	T	Water	300.0	
280-75804-1DU	Duplicate	T	Water	300.0	
280-75804-1MS	Matrix Spike	T	Water	300.0	
280-75804-1MSD	Matrix Spike Duplicate	T	Water	300.0	
280-75804-2	MW-6	T	Water	300.0	
280-75804-3	MW-14	T	Water	300.0	
280-75804-4	MW-20DD	T	Water	300.0	
280-75804-5	MW-5	T	Water	300.0	
280-75804-6	SW-7	T	Water	300.0	
280-75804-7	SW-6	T	Water	300.0	
280-75804-8	SW-4	T	Water	300.0	
280-75804-9	SW-1	T	Water	300.0	
280-75804-10	MW-13D	T	Water	300.0	
280-75804-11	MW-12I	T	Water	300.0	
280-75804-11DU	Duplicate	T	Water	300.0	
280-75804-11MS	Matrix Spike	T	Water	300.0	
280-75804-11MSD	Matrix Spike Duplicate	T	Water	300.0	

Client: SCS Engineers Job Number: 280-75804-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-300532					
LCS 280-300532/4	Lab Control Sample	T	Water	300.0	
LCSD 280-300532/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-300532/6	Method Blank	T	Water	300.0	
280-75804-1	MW-7	D	Water	300.0	
280-75804-2	MW-6	D	Water	300.0	
280-75804-3	MW-14	D	Water	300.0	
280-75804-4	MW-20DD	D	Water	300.0	
280-75804-5	MW-5	D	Water	300.0	
280-75804-6	SW-7	D	Water	300.0	
280-75804-7	SW-6	D	Water	300.0	
280-75804-8	SW-4	D	Water	300.0	
280-75804-9	SW-1	D	Water	300.0	
280-75804-10	MW-13D	D	Water	300.0	
280-75804-11	MW-12I	D	Water	300.0	
280-75804-11DU	Duplicate	D	Water	300.0	
280-75804-11MS	Matrix Spike	D	Water	300.0	
280-75804-11MSD	Matrix Spike Duplicate	D	Water	300.0	
Analysis Batch:280-300533					
LCS 280-300533/4	Lab Control Sample	T	Water	300.0	
LCSD 280-300533/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-300533/6	Method Blank	T	Water	300.0	
280-75804-1	MW-7	T	Water	300.0	
280-75804-2	MW-6	T	Water	300.0	
280-75804-3	MW-14	T	Water	300.0	
280-75804-4	MW-20DD	T	Water	300.0	
280-75804-5	MW-5	T	Water	300.0	
280-75804-6	SW-7	T	Water	300.0	
280-75804-7	SW-6	T	Water	300.0	
280-75804-8	SW-4	T	Water	300.0	
280-75804-9	SW-1	T	Water	300.0	
280-75804-10	MW-13D	T	Water	300.0	
280-75804-11	MW-12I	T	Water	300.0	
280-75804-11DU	Duplicate	T	Water	300.0	
280-75804-11MS	Matrix Spike	T	Water	300.0	
280-75804-11MSD	Matrix Spike Duplicate	T	Water	300.0	

Client: SCS Engineers Job Number: 280-75804-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-300904					
LCS 280-300904/4	Lab Control Sample	T	Water	SM 2320B	
MB 280-300904/5	Method Blank	T	Water	SM 2320B	
280-75804-1	MW-7	T	Water	SM 2320B	
280-75804-1DU	Duplicate	T	Water	SM 2320B	
280-75804-2	MW-6	T	Water	SM 2320B	
280-75804-3	MW-14	T	Water	SM 2320B	
280-75804-4	MW-20DD	T	Water	SM 2320B	
280-75804-5	MW-5	T	Water	SM 2320B	
280-75804-6	SW-7	T	Water	SM 2320B	
280-75804-7	SW-6	T	Water	SM 2320B	
280-75804-8	SW-4	T	Water	SM 2320B	
280-75804-9	SW-1	T	Water	SM 2320B	
280-75804-10	MW-13D	T	Water	SM 2320B	
280-75804-11	MW-12I	T	Water	SM 2320B	
Analysis Batch:280-301213					
LCS 280-301213/3	Lab Control Sample	T	Water	SM 5310B	
LCS 280-301213/35	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-301213/36	Lab Control Sample Duplicate	T	Water	SM 5310B	
LCSD 280-301213/4	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-301213/37	Method Blank	T	Water	SM 5310B	
MB 280-301213/5	Method Blank	T	Water	SM 5310B	
280-75804-1	MW-7	T	Water	SM 5310B	
280-75804-2	MW-6	T	Water	SM 5310B	
280-75804-3	MW-14	T	Water	SM 5310B	
280-75804-4	MW-20DD	T	Water	SM 5310B	
280-75804-5	MW-5	T	Water	SM 5310B	
280-75804-6	SW-7	T	Water	SM 5310B	
280-75804-7	SW-6	T	Water	SM 5310B	
280-75804-8	SW-4	T	Water	SM 5310B	
280-75804-9	SW-1	T	Water	SM 5310B	
280-75804-10	MW-13D	T	Water	SM 5310B	
280-75804-10MS	Matrix Spike	T	Water	SM 5310B	
280-75804-10MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-75804-11	MW-12I	T	Water	SM 5310B	

Client: SCS Engineers Job Number: 280-75804-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-301574					
LCS 280-301574/59	Lab Control Sample	T	Water	350.1	
LCSD 280-301574/60	Lab Control Sample Duplicate	T	Water	350.1	
MB 280-301574/61	Method Blank	T	Water	350.1	
280-75804-1	MW-7	T	Water	350.1	
280-75804-2	MW-6	T	Water	350.1	
280-75804-3	MW-14	T	Water	350.1	
280-75804-4	MW-20DD	T	Water	350.1	
280-75804-5	MW-5	T	Water	350.1	
280-75804-6	SW-7	T	Water	350.1	
280-75804-6MS	Matrix Spike	T	Water	350.1	
280-75804-6MSD	Matrix Spike Duplicate	T	Water	350.1	
280-75804-7	SW-6	T	Water	350.1	
280-75804-8	SW-4	T	Water	350.1	
280-75804-9	SW-1	T	Water	350.1	
280-75804-10	MW-13D	T	Water	350.1	
280-75804-11	MW-12I	T	Water	350.1	

Report Basis
D = Dissolved
T = Total

Client: SCS Engineers Job Number: 280-75804-1

Surrogate Recovery Report

8260C SIM Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	TBA %Rec
280-75804-1	MW-7	103	86
280-75804-2	MW-6	103	86
280-75804-3	MW-14	104	90
280-75804-4	MW-20DD	103	72
280-75804-5	MW-5	104	93
280-75804-6	SW-7	102	78
280-75804-7	SW-6	103	76
280-75804-8	SW-4	102	74
280-75804-9	SW-1	103	78
280-75804-10	MW-13D	105	83
280-75804-11	MW-12I	103	81
280-75804-12	TRIP BLANK	103	99
MB 480-271232/8		101	86
LCS 480-271232/5		106	121
LCSD 480-271232/6		102	117

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	50-150
TBA = TBA-d9 (Surr)	50-150

Client: SCS Engineers

Job Number: 280-75804-1

Method Blank - Batch: 480-271232

Method: 8260C SIM
Preparation: 5030C

Lab Sample ID:	MB 480-271232/8	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J6967.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/26/2015 2354	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/26/2015 2354				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020

Surrogate	% Rec	Acceptance Limits
Dibromofluoromethane (Surr)	101	50 - 150
TBA-d9 (Surr)	86	50 - 150

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 480-271232

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-271232/5	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J6964.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/26/2015 2242	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/26/2015 2242				25 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-271232/6	Analysis Batch:	480-271232	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J6965.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/26/2015 2307	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/26/2015 2307				25 mL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Vinyl chloride	113	115	50 - 150	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Dibromofluoromethane (Surr)	106	102	50 - 150
TBA-d9 (Surr)	121	117	50 - 150

Client: SCS Engineers

Job Number: 280-75804-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 480-271232

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-271232/5	Units: ug/L		LCSD Lab Sample ID:	LCSD 480-271232/6
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/26/2015 2242			Analysis Date:	10/26/2015 2307
Prep Date:	10/26/2015 2242			Prep Date:	10/26/2015 2307
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.200	0.200	0.226	0.230

Client: SCS Engineers Job Number: 280-75804-1

Method Blank - Batch: 280-300800

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-300800/1-A	Analysis Batch:	280-301480	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-300800	Lab File ID:	216_BLK.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0323	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Manganese	ND		1.0

Lab Control Sample - Batch: 280-300800

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-300800/2-A	Analysis Batch:	280-301480	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-300800	Lab File ID:	217_LCS.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0327	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Manganese	40.0	41.4	104	85 - 117	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300800

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-75804-2	Analysis Batch:	280-301480	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-300800	Lab File ID:	221SMPL.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0341			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-2	Analysis Batch:	280-301480	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-300800	Lab File ID:	222SMPL.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/28/2015 0345			Final Weight/Volume:	50 mL
Prep Date:	10/26/2015 1415				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Manganese	92	72	85 - 117	1	20	4	4

Client: SCS Engineers

Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300800

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-75804-2	Units: ug/L	MSD Lab Sample ID:	280-75804-2	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/28/2015 0341		Analysis Date:	10/28/2015 0345	
Prep Date:	10/26/2015 1415		Prep Date:	10/26/2015 1415	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Manganese	540	40.0	40.0	573	4	566	4

Method Blank - Batch: 280-300528

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-300528/6	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	6.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1332	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Nitrate	ND		0.50
Nitrite	ND		0.50

Method Reporting Limit Check - Batch: 280-300528

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-300528/3	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	3.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1239	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate	0.200	ND	102	50 - 150	
Nitrite	0.200	ND	94	50 - 150	

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-300528

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-300528/4	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1257	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-300528/5	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	5.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1314	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Nitrate	99	98	90 - 110	0	10		
Nitrite	96	97	90 - 110	0	10		

Client: SCS Engineers

Job Number: 280-75804-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-300528

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-300528/4	Units: mg/L	LCSD Lab Sample ID:	LCSD 280-300528/5
Client Matrix:	Water		Client Matrix:	Water
Dilution:	1.0		Dilution:	1.0
Analysis Date:	10/22/2015 1257		Analysis Date:	10/22/2015 1314
Prep Date:	N/A		Prep Date:	N/A
Leach Date:	N/A		Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Nitrate	5.00	5.00	4.93	4.92
Nitrite	5.00	5.00	4.82	4.83

Client: SCS Engineers Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300528

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-1	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	9.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1628			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-1	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1646			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate	100	101	80 - 120	1	20		
Nitrite	98	99	80 - 120	1	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300528

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-11	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	24.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2053			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-11	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	25.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2111			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate	97	98	80 - 120	1	20		
Nitrite	95	97	80 - 120	2	20		

Client: SCS Engineers Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300528

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-1	Units: mg/L		MSD Lab Sample ID:	280-75804-1
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/22/2015 1628			Analysis Date:	10/22/2015 1646
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Nitrate	ND	5.00	5.00	5.33	5.36
Nitrite	ND	5.00	5.00	4.92	4.95

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300528

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-11	Units: mg/L		MSD Lab Sample ID:	280-75804-11
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/22/2015 2053			Analysis Date:	10/22/2015 2111
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Nitrate	ND	5.00	5.00	4.84	4.91
Nitrite	ND	5.00	5.00	4.76	4.84

Client: SCS Engineers Job Number: 280-75804-1

Duplicate - Batch: 280-300528

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-75804-1	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	8.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1610	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate	ND	ND	NC	15	
Nitrite	ND	ND	NC	15	

Duplicate - Batch: 280-300528

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-75804-11	Analysis Batch:	280-300528	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	23.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2036	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate	ND	ND	NC	15	
Nitrite	ND	ND	NC	15	

Method Blank - Batch: 280-300529

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-300529/6	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	6.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1332	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Chloride	ND		1.0
Sulfate	ND		1.0

Method Reporting Limit Check - Batch: 280-300529

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-300529/3	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	3.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1239	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	2.50	ND	98	50 - 150	
Sulfate	2.50	ND	95	50 - 150	

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-300529

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-300529/4	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1257	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-300529/5	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	5.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1314	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chloride	101	101	90 - 110	0	10		
Sulfate	100	100	90 - 110	0	10		

Client: SCS Engineers

Job Number: 280-75804-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-300529

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-300529/4	Units: mg/L		LCSD Lab Sample ID:	LCSD 280-300529/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/22/2015 1257			Analysis Date:	10/22/2015 1314
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Chloride	100	100	101	101
Sulfate	100	100	100	100

Client: SCS Engineers Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300529

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-1	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	9.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1628			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-1	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1646			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	106	107	80 - 120	1	20		
Sulfate	105	106	80 - 120	1	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300529

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-11	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	24.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2053			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-11	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	25.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2111			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	103	104	80 - 120	1	20		
Sulfate	102	103	80 - 120	1	20		

Client: SCS Engineers Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300529

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-1	Units: mg/L	MSD Lab Sample ID: 280-75804-1
Client Matrix:	Water		Client Matrix: Water
Dilution:	1.0		Dilution: 1.0
Analysis Date:	10/22/2015 1628		Analysis Date: 10/22/2015 1646
Prep Date:	N/A		Prep Date: N/A
Leach Date:	N/A		Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	1.2	25.0	25.0	27.9	28.0
Sulfate	3.6	25.0	25.0	30.0	30.2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300529

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-11	Units: mg/L	MSD Lab Sample ID: 280-75804-11
Client Matrix:	Water		Client Matrix: Water
Dilution:	1.0		Dilution: 1.0
Analysis Date:	10/22/2015 2053		Analysis Date: 10/22/2015 2111
Prep Date:	N/A		Prep Date: N/A
Leach Date:	N/A		Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	3.3	25.0	25.0	29.1	29.4
Sulfate	7.7	25.0	25.0	33.1	33.4

Client: SCS Engineers Job Number: 280-75804-1

Duplicate - Batch: 280-300529

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-75804-1	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	8.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1610	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	1.2	1.25	0.4	15	
Sulfate	3.6	3.62	0.6	15	

Duplicate - Batch: 280-300529

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-75804-11	Analysis Batch:	280-300529	Instrument ID:	WC_IonChrom6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	23.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2036	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	3.3	3.32	0.3	15	
Sulfate	7.7	7.68	0.2	15	

Client: SCS Engineers Job Number: 280-75804-1

Method Blank - Batch: 280-300532

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-300532/6	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	06.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1217	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Orthophosphate as P-Dissolved	ND		0.50

Method Reporting Limit Check - Batch: 280-300532

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-300532/3	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	03.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1126	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Orthophosphate as P-Dissolved	0.200	ND	79	50 - 150	

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-300532

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-300532/4	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	04.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1143	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-300532/5	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	05.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1200	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Orthophosphate as P-Dissolved	97	97	90 - 110	0	10		

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-300532

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-300532/4	Units: mg/L	
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	10/22/2015 1143		
Prep Date:	N/A		
Leach Date:	N/A		

LCSD Lab Sample ID:	LCSD 280-300532/5
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	10/22/2015 1200
Prep Date:	N/A
Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Orthophosphate as P-Dissolved	5.00	5.00	4.84	4.86

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300532

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-11	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	28.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2008			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-11	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	31.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 2059			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Orthophosphate as P-Dissolved	96	98	80 - 120	3	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-300532

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-75804-11	Units: mg/L	
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	10/22/2015 2008		
Prep Date:	N/A		
Leach Date:	N/A		

MSD Lab Sample ID:	280-75804-11
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	10/22/2015 2059
Prep Date:	N/A
Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Orthophosphate as P-Dissolved	ND	5.00	5.00	4.78	4.92

Client: SCS Engineers

Job Number: 280-75804-1

Duplicate - Batch: 280-300532

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-75804-11	Analysis Batch:	280-300532	Instrument ID:	WC_IonChrom8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	27.0000.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/22/2015 1951	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Orthophosphate as P-Dissolved	ND	ND	NC	15	

Method Blank - Batch: 280-301574

Method: 350.1
Preparation: N/A

Lab Sample ID:	MB 280-301574/61	Analysis Batch:	280-301574	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\102815.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/28/2015 1359	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-301574

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-301574/59	Analysis Batch:	280-301574	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\102815.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/28/2015 1355	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-301574/60	Analysis Batch:	280-301574	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\102815.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/28/2015 1357	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Ammonia as N	100	101	90 - 110	1	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-301574

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-301574/59	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-301574/60
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/28/2015 1355			Analysis Date:	10/28/2015 1357
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Ammonia as N	2.50	2.50	2.51	2.52

Client: SCS Engineers Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-301574

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-75804-6	Analysis Batch:	280-301574	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\102815.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/28/2015 1455			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-6	Analysis Batch:	280-301574	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\102815.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/28/2015 1457			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Ammonia as N	112	112	90 - 110	0	10	F1	F1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-301574

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-75804-6	Units: mg/L		MSD Lab Sample ID:	280-75804-6
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/28/2015 1455			Analysis Date:	10/28/2015 1457
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Ammonia as N	ND	1.00	1.00	1.12	F1	1.12	F1

Client: SCS Engineers Job Number: 280-75804-1

Method Blank - Batch: 280-300904

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-300904/5	Analysis Batch:	280-300904	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102315 alk.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/23/2015 1336	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Total Alkalinity	ND		5.0
Bicarbonate Alkalinity	ND		5.0
Carbonate Alkalinity	ND		5.0

Lab Control Sample - Batch: 280-300904

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	LCS 280-300904/4	Analysis Batch:	280-300904	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102315 alk.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/23/2015 1332	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Alkalinity	200	198	99	90 - 110	

Duplicate - Batch: 280-300904

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-75804-1	Analysis Batch:	280-300904	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102315 alk.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/23/2015 1345	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	150	156	2	10	

Client: SCS Engineers Job Number: 280-75804-1

Method Blank - Batch: 280-301213 **Method: SM 5310B**
Preparation: N/A

Lab Sample ID:	MB 280-301213/5	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 1331	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Total Organic Carbon - Average	ND		1.0

Method Blank - Batch: 280-301213 **Method: SM 5310B**
Preparation: N/A

Lab Sample ID:	MB 280-301213/37	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 2225	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Total Organic Carbon - Average	ND		1.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-301213

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-301213/3	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 1252	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-301213/4	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 1311	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Organic Carbon - Average	103	103	88 - 112	0	15		

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-301213

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-301213/35	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 2150	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-301213/36	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 2208	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Organic Carbon - Average	104	104	88 - 112	0	15		

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-301213

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-301213/3	Units: mg/L	
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	10/26/2015 1252		
Prep Date:	N/A		
Leach Date:	N/A		

LCSD Lab Sample ID:	LCSD 280-301213/4		
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	10/26/2015 1311		
Prep Date:	N/A		
Leach Date:	N/A		

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Organic Carbon - Average	25.0	25.0	25.7	25.7

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-301213

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-301213/35	Units: mg/L	
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	10/26/2015 2150		
Prep Date:	N/A		
Leach Date:	N/A		

LCSD Lab Sample ID:	LCSD 280-301213/36		
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	10/26/2015 2208		
Prep Date:	N/A		
Leach Date:	N/A		

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Organic Carbon - Average	25.0	25.0	26.0	26.1

Client: SCS Engineers Job Number: 280-75804-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-301213

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-75804-10	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/26/2015 2358			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-75804-10	Analysis Batch:	280-301213	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	102615.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/27/2015 0015			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	103	103	88 - 112	0	15		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-301213

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-75804-10	Units:	mg/L	MSD Lab Sample ID:	280-75804-10
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/26/2015 2358			Analysis Date:	10/27/2015 0015
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Total Organic Carbon - Average	ND	25.0	25.0	26.5	26.6

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-1 **Client ID: MW-7**

Sample Date/Time: 10/21/2015 09:20 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-1		480-271232		10/27/2015 00:28	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-1		480-271232		10/27/2015 00:28	1	TAL BUF	CDC
P:3005A	280-75804-B-1-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-1-A		280-301480	280-300800	10/28/2015 03:30	1	TAL DEN	LMT
A:300.0	280-75804-A-1		280-300528		10/22/2015 15:52	1	TAL DEN	AFB
A:300.0	280-75804-A-1		280-300529		10/22/2015 15:52	1	TAL DEN	AFB
A:300.0	280-75804-C-1		280-300532		10/22/2015 16:13	1	TAL DEN	TLP
A:350.1	280-75804-D-1		280-301574		10/28/2015 14:29	1	TAL DEN	CML
A:SM 2320B	280-75804-A-1		280-300904		10/23/2015 13:41	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-1		280-301213		10/26/2015 19:05	1	TAL DEN	CCJ

Lab ID: 280-75804-1 MS **Client ID: MW-7**

Sample Date/Time: 10/21/2015 09:20 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-75804-A-1 MS		280-300528		10/22/2015 16:28	1	TAL DEN	AFB
A:300.0	280-75804-A-1 MS		280-300529		10/22/2015 16:28	1	TAL DEN	AFB

Lab ID: 280-75804-1 MSD **Client ID: MW-7**

Sample Date/Time: 10/21/2015 09:20 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-75804-A-1 MSD		280-300528		10/22/2015 16:46	1	TAL DEN	AFB
A:300.0	280-75804-A-1 MSD		280-300529		10/22/2015 16:46	1	TAL DEN	AFB

Lab ID: 280-75804-1 DU **Client ID: MW-7**

Sample Date/Time: 10/21/2015 09:20 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-75804-A-1 DU		280-300528		10/22/2015 16:10	1	TAL DEN	AFB
A:300.0	280-75804-A-1 DU		280-300529		10/22/2015 16:10	1	TAL DEN	AFB
A:SM 2320B	280-75804-A-1 DU		280-300904		10/23/2015 13:45	1	TAL DEN	NAS

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-2 **Client ID: MW-6**

Sample Date/Time: 10/21/2015 10:15 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-2		480-271232		10/27/2015 00:53	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-2		480-271232		10/27/2015 00:53	1	TAL BUF	CDC
P:3005A	280-75804-B-2-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-2-A		280-301480	280-300800	10/28/2015 03:34	1	TAL DEN	LMT
A:300.0	280-75804-C-2		280-300532		10/22/2015 16:30	1	TAL DEN	TLP
A:300.0	280-75804-A-2		280-300528		10/22/2015 17:03	1	TAL DEN	AFB
A:300.0	280-75804-A-2		280-300529		10/22/2015 17:03	1	TAL DEN	AFB
A:350.1	280-75804-D-2		280-301574		10/28/2015 14:31	1	TAL DEN	CML
A:SM 2320B	280-75804-A-2		280-300904		10/23/2015 13:50	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-2		280-301213		10/26/2015 19:21	1	TAL DEN	CCJ

Lab ID: 280-75804-2 MS **Client ID: MW-6**

Sample Date/Time: 10/21/2015 10:15 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-75804-B-2-B MS		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-2-B MS		280-301480	280-300800	10/28/2015 03:41	1	TAL DEN	LMT

Lab ID: 280-75804-2 MSD **Client ID: MW-6**

Sample Date/Time: 10/21/2015 10:15 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-75804-B-2-C MSD		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-2-C MSD		280-301480	280-300800	10/28/2015 03:45	1	TAL DEN	LMT

Lab ID: 280-75804-3 **Client ID: MW-14**

Sample Date/Time: 10/21/2015 11:10 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-3		480-271232		10/27/2015 01:17	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-3		480-271232		10/27/2015 01:17	1	TAL BUF	CDC
P:3005A	280-75804-B-3-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-3-A		280-301480	280-300800	10/28/2015 03:59	1	TAL DEN	LMT
A:300.0	280-75804-C-3		280-300532		10/22/2015 16:47	1	TAL DEN	TLP
A:300.0	280-75804-A-3		280-300528		10/22/2015 17:21	1	TAL DEN	AFB
A:300.0	280-75804-A-3		280-300529		10/22/2015 17:21	1	TAL DEN	AFB
A:350.1	280-75804-D-3		280-301574		10/28/2015 14:33	1	TAL DEN	CML
A:SM 2320B	280-75804-A-3		280-300904		10/23/2015 13:54	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-3		280-301213		10/26/2015 19:37	1	TAL DEN	CCJ

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-4 **Client ID: MW-20DD**

Sample Date/Time: 10/21/2015 11:30 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-4		480-271232		10/27/2015 01:41	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-4		480-271232		10/27/2015 01:41	1	TAL BUF	CDC
P:3005A	280-75804-B-4-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-4-A		280-301480	280-300800	10/28/2015 04:03	1	TAL DEN	LMT
A:300.0	280-75804-C-4		280-300532		10/22/2015 17:37	1	TAL DEN	TLP
A:300.0	280-75804-A-4		280-300528		10/22/2015 17:39	1	TAL DEN	AFB
A:300.0	280-75804-A-4		280-300529		10/22/2015 17:39	1	TAL DEN	AFB
A:350.1	280-75804-D-4		280-301574		10/28/2015 14:35	1	TAL DEN	CML
A:SM 2320B	280-75804-A-4		280-300904		10/23/2015 13:58	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-4		280-301213		10/26/2015 20:26	1	TAL DEN	CCJ

Lab ID: 280-75804-5 **Client ID: MW-5**

Sample Date/Time: 10/21/2015 12:10 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-5		480-271232		10/27/2015 02:05	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-5		480-271232		10/27/2015 02:05	1	TAL BUF	CDC
P:3005A	280-75804-B-5-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-5-A		280-301480	280-300800	10/28/2015 04:07	1	TAL DEN	LMT
A:300.0	280-75804-C-5		280-300532		10/22/2015 17:54	1	TAL DEN	TLP
A:300.0	280-75804-A-5		280-300528		10/22/2015 17:56	1	TAL DEN	AFB
A:300.0	280-75804-A-5		280-300529		10/22/2015 17:56	1	TAL DEN	AFB
A:350.1	280-75804-D-5		280-301574		10/28/2015 14:37	1	TAL DEN	CML
A:SM 2320B	280-75804-A-5		280-300904		10/23/2015 14:03	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-5		280-301213		10/26/2015 20:42	1	TAL DEN	CCJ

Lab ID: 280-75804-6 **Client ID: SW-7**

Sample Date/Time: 10/21/2015 09:30 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-6		480-271232		10/27/2015 02:29	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-6		480-271232		10/27/2015 02:29	1	TAL BUF	CDC
P:3005A	280-75804-B-6-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-6-A		280-301480	280-300800	10/28/2015 04:10	1	TAL DEN	LMT
A:300.0	280-75804-C-6		280-300532		10/22/2015 18:11	1	TAL DEN	TLP
A:300.0	280-75804-A-6		280-300528		10/22/2015 18:14	1	TAL DEN	AFB
A:300.0	280-75804-A-6		280-300529		10/22/2015 18:14	1	TAL DEN	AFB
A:350.1	280-75804-D-6		280-301574		10/28/2015 14:39	1	TAL DEN	CML
A:SM 2320B	280-75804-A-6		280-300904		10/23/2015 14:13	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-6		280-301213		10/26/2015 20:58	1	TAL DEN	CCJ

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-6 MS **Client ID: SW-7**

Sample Date/Time: 10/21/2015 09:30 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-75804-D-6 MS		280-301574		10/28/2015 14:55	1	TAL DEN	CML

Lab ID: 280-75804-6 MSD **Client ID: SW-7**

Sample Date/Time: 10/21/2015 09:30 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-75804-D-6 MSD		280-301574		10/28/2015 14:57	1	TAL DEN	CML

Lab ID: 280-75804-7 **Client ID: SW-6**

Sample Date/Time: 10/21/2015 10:15 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-7		480-271232		10/27/2015 02:53	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-7		480-271232		10/27/2015 02:53	1	TAL BUF	CDC
P:3005A	280-75804-B-7-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-7-A		280-301480	280-300800	10/28/2015 04:14	1	TAL DEN	LMT
A:300.0	280-75804-C-7		280-300532		10/22/2015 18:27	1	TAL DEN	TLP
A:300.0	280-75804-A-7		280-300528		10/22/2015 18:32	1	TAL DEN	AFB
A:300.0	280-75804-A-7		280-300529		10/22/2015 18:32	1	TAL DEN	AFB
A:350.1	280-75804-D-7		280-301574		10/28/2015 14:59	1	TAL DEN	CML
A:SM 2320B	280-75804-A-7		280-300904		10/23/2015 14:18	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-7		280-301213		10/26/2015 21:15	1	TAL DEN	CCJ

Lab ID: 280-75804-8 **Client ID: SW-4**

Sample Date/Time: 10/21/2015 10:35 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-8		480-271232		10/27/2015 03:17	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-8		480-271232		10/27/2015 03:17	1	TAL BUF	CDC
P:3005A	280-75804-B-8-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-8-A		280-301480	280-300800	10/28/2015 04:17	1	TAL DEN	LMT
A:300.0	280-75804-C-8		280-300532		10/22/2015 18:44	1	TAL DEN	TLP
A:300.0	280-75804-A-8		280-300528		10/22/2015 19:25	1	TAL DEN	AFB
A:300.0	280-75804-A-8		280-300529		10/22/2015 19:25	1	TAL DEN	AFB
A:350.1	280-75804-D-8		280-301574		10/28/2015 15:01	1	TAL DEN	CML
A:SM 2320B	280-75804-A-8		280-300904		10/23/2015 14:08	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-8		280-301213		10/26/2015 21:33	1	TAL DEN	CCJ

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-9 **Client ID: SW-1**

Sample Date/Time: 10/21/2015 11:05 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-9		480-271232		10/27/2015 03:41	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-9		480-271232		10/27/2015 03:41	1	TAL BUF	CDC
P:3005A	280-75804-B-9-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-9-A		280-301480	280-300800	10/28/2015 04:21	1	TAL DEN	LMT
A:300.0	280-75804-C-9		280-300532		10/22/2015 19:01	1	TAL DEN	TLP
A:300.0	280-75804-A-9		280-300528		10/22/2015 19:43	1	TAL DEN	AFB
A:300.0	280-75804-A-9		280-300529		10/22/2015 19:43	1	TAL DEN	AFB
A:350.1	280-75804-D-9		280-301574		10/28/2015 15:03	1	TAL DEN	CML
A:SM 2320B	280-75804-A-9		280-300904		10/23/2015 14:23	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-9		280-301213		10/26/2015 22:54	1	TAL DEN	CCJ

Lab ID: 280-75804-10 **Client ID: MW-13D**

Sample Date/Time: 10/21/2015 13:05 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-10		480-271232		10/27/2015 04:05	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-10		480-271232		10/27/2015 04:05	1	TAL BUF	CDC
P:3005A	280-75804-B-10-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-10-A		280-301480	280-300800	10/28/2015 04:25	1	TAL DEN	LMT
A:300.0	280-75804-C-10		280-300532		10/22/2015 19:18	1	TAL DEN	TLP
A:300.0	280-75804-A-10		280-300528		10/22/2015 20:00	1	TAL DEN	AFB
A:300.0	280-75804-A-10		280-300529		10/22/2015 20:00	1	TAL DEN	AFB
A:350.1	280-75804-D-10		280-301574		10/28/2015 15:05	1	TAL DEN	CML
A:SM 2320B	280-75804-A-10		280-300904		10/23/2015 14:36	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-10		280-301213		10/26/2015 23:42	1	TAL DEN	CCJ

Lab ID: 280-75804-10 MS **Client ID: MW-13D**

Sample Date/Time: 10/21/2015 13:05 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-75804-D-10 MS		280-301213		10/26/2015 23:58	1	TAL DEN	CCJ

Lab ID: 280-75804-10 MSD **Client ID: MW-13D**

Sample Date/Time: 10/21/2015 13:05 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-75804-D-10 MSD		280-301213		10/27/2015 00:15	1	TAL DEN	CCJ

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-11 **Client ID: MW-12I**

Sample Date/Time: 10/21/2015 13:54 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-E-11		480-271232		10/27/2015 04:29	1	TAL BUF	CDC
A:8260C SIM	280-75804-E-11		480-271232		10/27/2015 04:29	1	TAL BUF	CDC
P:3005A	280-75804-B-11-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	280-75804-B-11-A		280-301480	280-300800	10/28/2015 04:28	1	TAL DEN	LMT
A:300.0	280-75804-C-11		280-300532		10/22/2015 19:35	1	TAL DEN	TLP
A:300.0	280-75804-A-11		280-300528		10/22/2015 20:18	1	TAL DEN	AFB
A:300.0	280-75804-A-11		280-300529		10/22/2015 20:18	1	TAL DEN	AFB
A:350.1	280-75804-D-11		280-301574		10/28/2015 15:07	1	TAL DEN	CML
A:SM 2320B	280-75804-A-11		280-300904		10/23/2015 14:41	1	TAL DEN	NAS
A:SM 5310B	280-75804-D-11		280-301213		10/27/2015 00:32	1	TAL DEN	CCJ

Lab ID: 280-75804-11 MS **Client ID: MW-12I**

Sample Date/Time: 10/21/2015 13:54 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-75804-C-11 MS		280-300532		10/22/2015 20:08	1	TAL DEN	TLP
A:300.0	280-75804-A-11 MS		280-300528		10/22/2015 20:53	1	TAL DEN	AFB
A:300.0	280-75804-A-11 MS		280-300529		10/22/2015 20:53	1	TAL DEN	AFB

Lab ID: 280-75804-11 MSD **Client ID: MW-12I**

Sample Date/Time: 10/21/2015 13:54 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-75804-C-11 MSD		280-300532		10/22/2015 20:59	1	TAL DEN	TLP
A:300.0	280-75804-A-11 MSD		280-300528		10/22/2015 21:11	1	TAL DEN	AFB
A:300.0	280-75804-A-11 MSD		280-300529		10/22/2015 21:11	1	TAL DEN	AFB

Lab ID: 280-75804-11 DU **Client ID: MW-12I**

Sample Date/Time: 10/21/2015 13:54 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-75804-C-11 DU		280-300532		10/22/2015 19:51	1	TAL DEN	TLP
A:300.0	280-75804-A-11 DU		280-300528		10/22/2015 20:36	1	TAL DEN	AFB
A:300.0	280-75804-A-11 DU		280-300529		10/22/2015 20:36	1	TAL DEN	AFB

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: 280-75804-12 **Client ID: TRIP BLANK**

Sample Date/Time: 10/21/2015 00:00 Received Date/Time: 10/22/2015 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-75804-F-12		480-271232		10/27/2015 04:53	1	TAL BUF	CDC
A:8260C SIM	280-75804-F-12		480-271232		10/27/2015 04:53	1	TAL BUF	CDC

Lab ID: MB **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	MB 480-271232/8		480-271232		10/26/2015 23:54	1	TAL BUF	CDC
A:8260C SIM	MB 480-271232/8		480-271232		10/26/2015 23:54	1	TAL BUF	CDC
P:3005A	MB 280-300800/1-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	MB 280-300800/1-A		280-301480	280-300800	10/28/2015 03:23	1	TAL DEN	LMT
A:300.0	MB 280-300532/6		280-300532		10/22/2015 12:17	1	TAL DEN	TLP
A:300.0	MB 280-300528/6		280-300528		10/22/2015 13:32	1	TAL DEN	AFB
A:300.0	MB 280-300529/6		280-300529		10/22/2015 13:32	1	TAL DEN	AFB
A:350.1	MB 280-301574/61		280-301574		10/28/2015 13:59	1	TAL DEN	CML
A:SM 2320B	MB 280-300904/5		280-300904		10/23/2015 13:36	1	TAL DEN	NAS
A:SM 5310B	MB 280-301213/5		280-301213		10/26/2015 13:31	1	TAL DEN	CCJ
A:SM 5310B	MB 280-301213/37		280-301213		10/26/2015 22:25	1	TAL DEN	CCJ

Lab ID: LCS **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	LCS 480-271232/5		480-271232		10/26/2015 22:42	1	TAL BUF	CDC
A:8260C SIM	LCS 480-271232/5		480-271232		10/26/2015 22:42	1	TAL BUF	CDC
P:3005A	LCS 280-300800/2-A		280-301480	280-300800	10/26/2015 14:15	1	TAL DEN	MLS
A:6020	LCS 280-300800/2-A		280-301480	280-300800	10/28/2015 03:27	1	TAL DEN	LMT
A:300.0	LCS 280-300532/4		280-300532		10/22/2015 11:43	1	TAL DEN	TLP
A:300.0	LCS 280-300528/4		280-300528		10/22/2015 12:57	1	TAL DEN	AFB
A:300.0	LCS 280-300529/4		280-300529		10/22/2015 12:57	1	TAL DEN	AFB
A:350.1	LCS 280-301574/59		280-301574		10/28/2015 13:55	1	TAL DEN	CML
A:SM 2320B	LCS 280-300904/4		280-300904		10/23/2015 13:32	1	TAL DEN	NAS
A:SM 5310B	LCS 280-301213/3		280-301213		10/26/2015 12:52	1	TAL DEN	CCJ
A:SM 5310B	LCS 280-301213/35		280-301213		10/26/2015 21:50	1	TAL DEN	CCJ

Client: SCS Engineers Job Number: 280-75804-1

Laboratory Chronicle

Lab ID: LCSD **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	LCSD 480-271232/6		480-271232		10/26/2015 23:07	1	TAL BUF	CDC
A:8260C SIM	LCSD 480-271232/6		480-271232		10/26/2015 23:07	1	TAL BUF	CDC
A:300.0	LCSD 280-300532/5		280-300532		10/22/2015 12:00	1	TAL DEN	TLP
A:300.0	LCSD 280-300528/5		280-300528		10/22/2015 13:14	1	TAL DEN	AFB
A:300.0	LCSD 280-300529/5		280-300529		10/22/2015 13:14	1	TAL DEN	AFB
A:350.1	LCSD 280-301574/60		280-301574		10/28/2015 13:57	1	TAL DEN	CML
A:SM 5310B	LCSD 280-301213/4		280-301213		10/26/2015 13:11	1	TAL DEN	CCJ
A:SM 5310B	LCSD 280-301213/36		280-301213		10/26/2015 22:08	1	TAL DEN	CCJ

Lab ID: MRL **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	MRL 280-300532/3		280-300532		10/22/2015 11:26	1	TAL DEN	TLP
A:300.0	MRL 280-300528/3		280-300528		10/22/2015 12:39	1	TAL DEN	AFB
A:300.0	MRL 280-300529/3		280-300529		10/22/2015 12:39	1	TAL DEN	AFB

Lab References:
TAL BUF = TestAmerica Buffalo
TAL DEN = TestAmerica Denver

Analytical Resources, Incorporated
Analytical Chemists and Consultants

3 November 2015

Betsy Sara
Test America-Denver
4955 Yarrow Street
Arvada, CO 80002

RE: Project: Hansville LF
ARI Job No.: APE5

Dear Betsy:

Please find enclosed the original Chain of Custody (COC) documentation and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted eleven water samples on October 22, 2015. The samples were received in good condition. The samples were analyzed for dissolved arsenic as requested.

No analytical complications were noted for these analyses.

Copies of these reports and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file APE5

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: APES	Turn-around Requested: Standard	Date: 10/22/15	
ARI Client Company: SCS	Phone: (612) 940-2980 (office: (425) 746-4600)	Page: 1 of 2	
Client Contact: ~~Sam Graber~~ Dan Vanchiarutti		No. of Coolers:	Cooler Temps:
Client Project Name: Hansville LF			
Client Project #: 04211017.04	Samplers: Sam G. & Sam A.		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved Arsenic	Notes/Comments
MW-7	10/21/15	920	Water	1	X	
MW-6		1015				
MW-14		1110				
MW-20DD		1130				
MW-5		1210				
SW-7		930				
SW-6		1015				
SW-4		1035				
SW-1		1105				
MW-13D		1305				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Sam Graber	Printed Name: Brian Warren	Printed Name:	Printed Name:
	Company: SCS	Company: ARI	Company:	Company:
	Date & Time: 10/22/15 1230	Date & Time: 10/22/15 1230	Date & Time:	Date & Time:

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

APES 0002

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: APES	Turn-around Requested: Standard	Date: 10/22/15	
ARI Client Company: SCS	Phone: (612) 940-2980	Page: 2 of 2	
Client Contact: ~~Sam Graber~~ Dan Venchiarutti		No. of Coolers:	Cooler Temps:
Client Project Name: Hansville LF			
Client Project #: 042110 17.04	Samplers: Sam G. & Sam A.		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved Arsenic	Notes/Comments
MW-12I	10/21/15	1354	water	1	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Sam Graber	Printed Name: Brian Wang	Printed Name:	Printed Name:
	Company: SCS	Company: ARI	Company:	Company:
	Date & Time: 10/22/15 1230	Date & Time: 10/22/15 1230	Date & Time:	Date & Time:

APES 0003

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SCS Project Name: _____

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: APE5 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 0.5

Time: _____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00565

Cooler Accepted by: _____ Date: 10/22/15 Time: 1230

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ...	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: _____ Date: 10/26/15 Time: 1042

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

1

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	● ● ●

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: APE5
Client: SCS Engineers
Project Event: 04211017.04
Project Name: Hansville LF

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-7	APE5A	15-19932	Water	10/21/15 09:20	10/22/15 14:45
2.	MW-6	APE5B	15-19933	Water	10/21/15 10:15	10/22/15 14:45
3.	MW-14	APE5C	15-19934	Water	10/21/15 11:10	10/22/15 14:45
4.	MW-20DD	APE5D	15-19935	Water	10/21/15 11:30	10/22/15 14:45
5.	MW-5	APE5E	15-19936	Water	10/21/15 12:10	10/22/15 14:45
6.	SW-7	APE5F	15-19937	Water	10/21/15 09:30	10/22/15 14:45
7.	SW-6	APE5G	15-19938	Water	10/21/15 10:15	10/22/15 14:45
8.	SW-4	APE5H	15-19939	Water	10/21/15 10:35	10/22/15 14:45
9.	SW-1	APE5I	15-19940	Water	10/21/15 11:05	10/22/15 14:45
10.	MW-13D	APE5J	15-19941	Water	10/21/15 13:05	10/22/15 14:45
11.	MW-12I	APE5K	15-19942	Water	10/21/15 13:54	10/22/15 14:45

Printed 10/26/15 Page 1 of 1

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: MW-7
SAMPLE

Lab Sample ID: APE5A
LIMS ID: 15-19932
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0010**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-7
DUPLICATE

Lab Sample ID: APE5A
LIMS ID: 15-19932
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	0.0010	0.0010	0.0%	+/- 20%	

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-7
MATRIX SPIKE

Lab Sample ID: APE5A
LIMS ID: 15-19932
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	0.0010	0.0058	0.005	96.0%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: APE5B
LIMS ID: 15-19933
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0016**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

APE5 : 00012

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-14
SAMPLE

Lab Sample ID: APE5C
LIMS ID: 15-19934
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0148**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

APE5:00013

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-20DD
SAMPLE

Lab Sample ID: APE5D
LIMS ID: 15-19935
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0146**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

APE5 : 00014

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5
SAMPLE

Lab Sample ID: APE5E
LIMS ID: 15-19936
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0017**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-7
SAMPLE

Lab Sample ID: APE5F
LIMS ID: 15-19937
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0019**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-6
SAMPLE

Lab Sample ID: APE5G
LIMS ID: 15-19938
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0034**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-4
SAMPLE

Lab Sample ID: APE5H
LIMS ID: 15-19939
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0018**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-1
SAMPLE

Lab Sample ID: APE5I
LIMS ID: 15-19940
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0014**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-13D
SAMPLE

Lab Sample ID: APE5J
LIMS ID: 15-19941
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0038**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-12I
SAMPLE

Lab Sample ID: APE5K
LIMS ID: 15-19942
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: 10/21/15
Date Received: 10/22/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	**7440-38-2**	**Arsenic**	0.0001	**0.0022**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

APE5 : 00021

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: APE5MB
LIMS ID: 15-19942
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/29/15	200.8	11/02/15	7440-38-2	Arsenic	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: APE5LCS
LIMS ID: 15-19942
Matrix: Water
Data Release Authorized:
Reported: 11/03/15

QC Report No: APE5-SCS Engineers
Project: Hansville LF
04211017.04
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	0.0051	0.0050	102%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

APE5 : 00023

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

280-75804 Chain of Custody

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Sam Graber	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Sam Graber	Phone: (612) 940-2480	E-Mail: betsy.sara@testamericainc.com		Page: 1 of 2
Company: SCS Engineers				Job #: 04211017.04

Address: 2405 140th Avenue NE Suite 107	Due Date Requested: Standard	Analysis Requested
City: Bellevue	TAT Requested (days): Standard	
State, Zip: WA, 98005-1877		
Phone: (612) 940-2480	PO #: Purchase Order not required	
Email: SGraber@scsengineers.com	WO #:	
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 4Q15 Sampling	
Site: Washington	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4/NO3/NO3(IC)	Ortho-phosphate (field filtered)	Dissolved Arsenice (Direct sub to ARI) *	Total Number of containers	Special Instructions/Note:
		Preservation Code:			X	X	A	D	S	N	N	D	X	
MW-7	10/21/15	920	G	W	Y	N							7	Short Holds: NO3/NO2(IC), Orthophosphate (IC)
MW-6		1015												Dissolved Arsenic subbed direct to ARI
MW-14		1110												
MW-20DD		1130												
MW-5		1210												
SW-7		0930												
SW-6		1015												
SW-4		1035												
SW-1		1105												
MW-13D		1305												
MW-12I	↓	1354	↓	↓										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Dan		SCS		0930 22Oct15	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No
Custody Seal No.: S34428 S34429 S34430
Cooler Temperature(s) °C and Other Remarks: 1.9, 0.8, 2.4 IR510.1 (TAD 22Oct15

Page 109 of 114

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: SAM GRABER	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: DAN VENCHIARUTTI	Phone: (612)940-2480	E-Mail: betsy.sara@testamericainc.com		Page: 2 of 2

Company: SCS Engineers		Analysis Requested	Job #:
Address: 2405 140th Avenue NE Suite 107	Due Date Requested: STANDARD		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Bellevue	TAT Requested (days): ↓		
State, Zip: WA, 98005-1877			
Phone: 425-289-5455	PO #: Purchase Order not required		
Email: DVENCHIARUTTI@SCSENGINEERS.COM	WO #:		
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 4Q15 Sampling		Other:
Site: Washington	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4/NO3/NO3(IC)	Ortho-phosphate (field filtered)	Dissolved Arsenice (Direct sub to ARI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	D	S	N	N	D		
TRIP BLANK						X							Short Holds: NO3/NO2(IC), Orthophosphate (IC)
													Dissolved Arsenic subbed direct to ARI

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
SAM GRABER	10/21/15 15:00	SCS		0930 220ct15	TAN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No	Custody Seal No.: 534428 534429 534430	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-325692.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.				Job #: 280-75804-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 11/3/2015			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Hansville Landfill	Project #: 28006013			
Site: Hansville	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchior	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C_SIM/5030C (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-7 (280-75804-1)	10/21/15	09:20 Pacific		Water			X	3	
MW-6 (280-75804-2)	10/21/15	10:15 Pacific		Water			X	3	
MW-14 (280-75804-3)	10/21/15	11:10 Pacific		Water			X	3	
MW-20DD (280-75804-4)	10/21/15	11:30 Pacific		Water			X	3	
MW-5 (280-75804-5)	10/21/15	12:10 Pacific		Water			X	3	
SW-7 (280-75804-6)	10/21/15	09:30 Pacific		Water			X	3	
SW-6 (280-75804-7)	10/21/15	10:15 Pacific		Water			X	3	
SW-4 (280-75804-8)	10/21/15	10:35 Pacific		Water			X	3	
SW-1 (280-75804-9)	10/21/15	11:05 Pacific		Water			X	3	
MW-13D (280-75804-10)	10/21/15	13:05 Pacific		Water			X	3	
MW-12I (280-75804-11)	10/21/15	13:54 Pacific		Water			X	3	

Possible Hazard Identification Unconfirmed	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/22/15 @ 1500	TAL	[signature]	10/23/15 0900	TAL Buf.
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: #14.1°C

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-325692.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: betsy.sara@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Analysis Requested		Job #: 280-75804-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 11/3/2015			Preservation Codes:
City: Amherst	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: NY, 14228-2298	PO #:			
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	WO #:			Other:
Email:				
Project Name: Hansville Landfill	Project #: 28006013			
Site: Hansville	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C_SIM/5030C (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TRIP BLANK (280-75804-12)	10/21/15	Pacific		Water			X	6	

Page 112 of 114

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 10/22/15 @ 1540	Company TAN	Received by:	Date/Time: 10/23/15 0900	Company TAL DEN.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: #1 4.1°C

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-75804-1

Login Number: 75804
List Number: 1
Creator: Muniz, Ashley T

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to job narrative for details
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-75804-1

Login Number: 75804
List Number: 2
Creator: Hulbert, Michael J

List Source: TestAmerica Buffalo
List Creation: 10/23/15 03:48 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.1 #1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Appendix G

Kitsap Public Health District
2015 Landfill Inspection Reports

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A-1.1

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

March 22, 2015

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2015 1st QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 1st quarter inspection of 2015 at the Hansville Landfill. Thank you for meeting me at the facility. It was a pleasure to see you and inspect the Hansville Landfill.

The inspection occurred on March 19, 2015. The facility was in compliance with state and local solid waste regulations.

The following items were noted or discussed during the inspection:

- Five of the gas well headers were replaced in the last 3 months. Photos were taken of one of the new headers.
- A copy of the inspection form is attached.
- The next inspection is scheduled for May or June of 2015.

If you have any questions or comments please feel free to contact me at (360) 337-5605.

Sincerely,

Grant A. Holdcroft

Grant A. Holdcroft, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Hansville Landfill **Operator:** KCPW **Phone #:**

Location of Facility: Ecology Rd.

Inspector: GA Holdroft **Date:** 3/19/2015 **Time:** 800 AM

Type of Inspection Checklist Used: **Facility Representative Present:** Alexis McKinnon

Reason for Inspection	Type of Inspection	Results	Sample Taken?
X Scheduled	X Full Quarterly	X Compliant	___ Yes X No
___ Return	___ Brief	___ Non-Compliant	
___ Complaint	___ No Entry	___ Approved	
___ Permit Investigation	___ Consultation	___ Disapproved	**Attachments? (photos, etc.)**
___ Sample	___ Plan Review	___ Other	X Yes ___ No
___ By Request	___ Site Review		Type?
___ Other	___ Other		

Item #	Description (see attached checklist for complete list of items)	Correction Date
	None	—

Comments: New well heads on Gas wells. 5 heads replaced. Photo of one well head. water in perimeter ditch. 3" Rain last weekend. (4 days ago).

Signatures: Alexis McKinnon
Facility Representative

GA Holdroft
KPHD Inspector

File Name: _____

☒ Db
☐ Letter

H-1.1.2

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

June 26, 2015

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2015 2nd QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 2nd quarter inspection of 2015 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on June 26, 2015 at approximately 9:00 a.m.

The following items were noted or discussed during the inspection:

- Landfill site conditions were excellent, recent mowing noted.
- Stormwater ditches and ponds were dry and free from debris build up.
- Odors from the flare were noted at the time of inspection
- A copy of the checklist and inspection form is attached.

If you have any questions or comments please feel free to contact me at (360) 337-5608.

Sincerely,

Richard Bazzell, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Hansville LF **Operator:** A. McKinnon **Phone #:** 360-337-577 X5784

Location of Facility: 7791 Ecology Rd, Kingston WA

Inspector: R. Bazzell, G. Holdcroft **Date:** 6/26/15 **Time:** 0900

Type of Inspection Checklist Used:

Facility Representative Present: A. McKinnon

Reason for Inspection	Type of Inspection	Results	Sample Taken?
X Scheduled	X Full Quarterly	X Compliant	___ Yes X No
___ Return	___ Brief	___ Non-Compliant	
___ Complaint	___ No Entry	___ Approved	
___ Permit Investigation	___ Consultation	___ Disapproved	**Attachments?** (photos, etc.)
___ Sample	___ Plan Review	___ Other	___ Yes X No
___ By Request	___ Site Review		Type?
___ Other	___ Other		

Item #	Description (see attached checklist for complete list of items)	Correction Date

Comments: Landfill site conditions were excellent; control public access, recently maintained vegetative cover. No H2O in perimeter ditch. Discussion regarding LF settling and Functional Stability (Settlement). KPHD encourages survey of all areas not including native undisturbed soil

Signatures: A McKinnon
Facility Representative

R Bazzell
KPHD Inspector
RICHARD BAZZELL

File Name: _____

KITSAP COUNTY HEALTH DISTRICT

SCOTT W. LINDQUIST, MD, MPH, DIRECTOR
345 6TH STREET, SUITE 300
BREMERTON, WA 98337-1866
(360) 337-5235

HISTORIC LAND FILL INSPECTION FORM

Facility Name: Hansville LF **Parcel Number:** 092702-1-005-2005

Location of Facility: 7194 Ecology Rd, Kingston WA

Dates of Operation: 1962-1989 **Closed w/ WAC:** 173-304

Inspector: R. Barrell, G. Holcroft **Date:** 6-26-15 **Time:** 0900

Current Site Conditions (applicable for all landfills)

Y	~~N~~	Signs of erosion	Y	~~N~~	Recent construction in area
Y	~~N~~	Visible SW/Debris/Dumping noted	Y	~~N~~	Activities in area (List type in comments section)
Y	~~N~~	Signs of leachate seeps	~~Y~~	N	Odors present * from gas x-change plant/flame

Table A

	Y	N	**Closed Under 301 or before 1985 use Table A only for inspection.**
1	✓		Control public access by means of a lockable gate at each entry. (301-185)
2	✓		Clean and sanitary conditions at site? (301-183)
3	✓		Seeded with natural vegetative cover. (301-306)
4	✓		Slopes on side and top of landfill intact (30 degree side, 2 degree top) (301-303)
5	✓		Final cover layer intact, no exposed waste, two foot minimum for fill, sloped for water runoff. (301-305)
6	✓		Surface water handled around or under the site? (301-183)

Table B

	Y	N	**Closed Under 304 (1985-2003) use Table A and B for inspection.**
1	✓		Methane monitoring, as needed (304-407.b)
2	✓		Ground water monitoring wells present, as needed (304-407.b)
3	✓		Leachate monitoring, as needed (304-407.b)

4	✓		Permanent survey/ boundary posts are in place and free of soil or vegetative cover (304-460.4.c)
5	✓		Closure plan on File (304-600)

Table C

	Y	N	**Closed Under 350 and 351 (after 2003) use Table A, B and C for inspection.**
1	✓		Storm water channels are free of excess silt/debris build-up. (350-400.7.a.i) dry
2	✓		Downchutes on landfill footprint are in good condition and free of excess silt/debris: (350-400.7.a.i)
3	✓		Storm water ponds are free of excess silt/debris: (350-400.7.a.i)
4	✓		No discharge of turbid water from storm water ponds to wetlands: (351-200.8)
5	—	—	Leachate Evaporator System (LES) functioning. (351-200.2.a.ii)
6	—	—	LES residual being properly handled. (351-200.2.a.ii)
7	—	—	Aerators running in leachate pond. (351-200.2.a.ii)
8	✓		Vegetation on top deck, side slopes mowed annually. (350-400) recently mowed w/ new equip. purchased from PW

Comments: _____

Results

	Y	N	
1	✓		Compliant
2			Attachments to report (photos, etc.) SW Inspection Form & Inspection Letter.

Signatures: _____
KCHD Inspector

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

October 27, 2015

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2015 3rd QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 3rd quarter inspection of 2015 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on September 28, 2015 at approximately 1300.

The following items were noted or discussed during the inspection:

- Overall site conditions were excellent.
- Active monitoring well heads were recently painted.
- Heavy vegetation surrounding storm pond recently removed.
- A copy of the inspection form is attached.

If you have any questions or comments please feel free to contact me at (360) 337-5608.

Sincerely,

RBazzell

Richard Bazzell, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Hansville LF **Operator:** KCPW-SW **Phone #:**

Location of Facility: 7791 Ecology Rd, Kingston WA

Inspector: R. Burrell **Date:** 9-28-15 **Time:** 1300

Type of Inspection Checklist Used: **Facility Representative Present:**

Reason for Inspection	Type of Inspection	Results	Sample Taken?
X Scheduled	X Full Quarterly	___ Compliant	___ Yes X No
___ Return	___ Brief	___ Non-Compliant	
___ Complaint	___ No Entry	___ Approved	
___ Permit Investigation	___ Consultation	___ Disapproved	**Attachments? (photos, etc.)**
___ Sample	___ Plan Review	___ Other	X Yes ___ No
___ By Request	___ Site Review		Type?
___ Other	___ Other		

Item #	Description (see attached checklist for complete list of items)	Correction Date

Comments: Overall site conditions are excellent. Active monitoring well heads recently painted. vegetation maintained providing site access.

Signatures: Facility Representative KPHD Inspector

File Name: _____

KITSAP COUNTY HEALTH DISTRICT

SCOTT W. LINDQUIST, MD, MPH, DIRECTOR
345 6TH STREET, SUITE 300
BREMERTON, WA 98337-1866
(360) 337-5235

HISTORIC LAND FILL INSPECTION FORM

Facility Name: Hansville LF **Parcel Number:** KCRW-SW

Location of Facility: 7791 Ecology Rd, Kingston WA

Dates of Operation: '62-89 **Closed w/ WAC:** 304

Inspector: R-Buzzell **Date:** 09-28-15 **Time:** 1300

Current Site Conditions (applicable for all landfills)

Y	N	Signs of erosion	Y	N	Recent construction in area
Y	N	Visible SW/Debris/Dumping noted	Y	N	Activities in area (List type in comments section)
Y	N	Signs of leachate seeps	Y	N	Odors present

Table A

	Y	N	**Closed Under 301 or before 1985 use Table A only for inspection.**
1			Control public access by means of a lockable gate at each entry. (301-185)
2			Clean and sanitary conditions at site? (301-183)
3			Seeded with natural vegetative cover. (301-306)
4			Slopes on side and top of landfill intact (30 degree side, 2 degree top) (301-303)
5			Final cover layer intact, no exposed waste, two foot minimum for fill, sloped for water runoff. (301-305)
6			Surface water handled around or under the site? (301-183)

Table B

	Y	N	**Closed Under 304 (1985-2003) use Table A and B for inspection.**
1			Methane monitoring, as needed (304-407.b)
2			Ground water monitoring wells present, as needed (304-407.b)
3			Leachate monitoring, as needed (304-407.b)

4	/		Permanent survey/ boundary posts are in place and free of soil or vegetative cover (304-460.4.c)
5	/		Closure plan on File (304-600)

Table C

	Y	N	**Closed Under 350 and 351 (after 2003) use Table A, B and C for inspection.**
1			Storm water channels are free of excess silt/debris build-up. (350-400.7.a.i)
2			Downchutes on landfill footprint are in good condition and free of excess silt/debris: (350-400.7.a.i)
3			Storm water ponds are free of excess silt/debris: (350-400.7.a.i)
4			No discharge of turbid water from storm water ponds to wetlands: (351-200.8)
5			Leachate Evaporator System (LES) functioning. (351-200.2.a.ii)
6			LES residual being properly handled. (351-200.2.a.ii)
7			Aerators running in leachate pond. (351-200.2.a.ii)
8			Vegetation on top deck, side slopes mowed annually. (350-400)

Comments: _____

Results

	Y	N	
1	X		Compliant
2			Attachments to report (photos, etc.)

Signatures: _____
KCHD Inspector

4-1.12

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

December 16, 2015

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2015 4th QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 4th quarter inspection of 2015 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on December 16, 2015 at approximately 1000.

The following items were noted or discussed during the inspection:

- Overall site conditions were excellent.
- A copy of the inspection form is attached.

If you have any questions or comments please feel free to contact me at (360) 337-5608.

Sincerely,

Richard Bazzell, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Hansville Landfill **Operator:** KCPW **Phone #:** 337-5784

Location of Facility: Ecology Rd, Kingston 98364

Inspector: R Burrell **Date:** 12-16-15 **Time:** 1000

Type of Inspection Checklist Used: **Facility Representative Present:** A. McKinnon

Reason for Inspection	Type of Inspection	Results	Sample Taken?
X Scheduled ___ Return ___ Complaint ___ Permit Investigation ___ Sample ___ By Request ___ Other	X Full Quarterly ___ Brief ___ No Entry ___ Consultation ___ Plan Review ___ Site Review ___ Other	X Compliant ___ Non-Compliant ___ Approved ___ Disapproved ___ Other	___ Yes X No **Attachments? (photos, etc.)** ___ Yes X No Type: photo log

Item #	Description (see attached checklist for complete list of items)	Correction Date
	No issues w/ exception to impaired access/security surrounding Landfill	

Comments: Coordinate w/ KPHD to prevent further trespass and to secure site perimeter.

Signatures: _____ Facility Representative _____ KPHD Inspector