



2014 Annual Monitoring Report

Remedial Action at the Hansville Landfill

Kitsap County, WA

Presented to:

**KITSAP COUNTY/
WASTE MANAGEMENT OF WASHINGTON, INC**

c/o

Alexis McKinnon
Kitsap County Public Works
Solid Waste Division
614 Division Street MS-27
Port Orchard, Washington 98366
(360) 337-5784

Presented by:

SCS ENGINEERS
2405 140th Avenue NE
Bellevue, Washington 98005
(425) 289-5455

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2014 Annual Monitoring Report

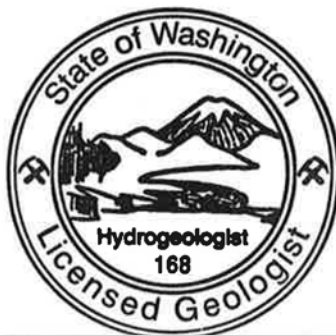
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Bellevue, WA 98005

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Daniel A. Venchiarutti

Daniel A. Venchiarutti, LG, LHG
SCS ENGINEERS

Gregory D. Helland, LG, LHG
SCS ENGINEERS

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ACRONYMS

bgs	below ground surface
CAP	Cleanup Action Plan
CDC	construction, demolition, and land clearing wastes
CH ₄	methane
CMP	Compliance Monitoring Plan
CO ₂	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
O ₂	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
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 2014. 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 measurements were also recorded on a quarterly basis.

Site monitoring activities completed during the 2014 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 landfill gas collection system, including horizontal piping installed beneath the HDPE liner and a flaring station, was also constructed at this time. In 1991, an active landfill gas 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 2014 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 2014 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 2014 (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 2014 landfill gas monitoring results, including a summary table for the reporting period (Appendix B). Figure 3 illustrates the layout of the landfill gas system and monitoring probe locations (Appendix A).
- Summary landfill gas data tables, previously reported, for the preceding three quarters of 2014 (Appendix C).
- Field report forms and laboratory analytical reports (including data validation summaries) for the fourth quarter 2014 (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 (CDC); 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 wooded, 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 landfill gas extraction/flaring system was installed, and surface water drainage controls were implemented. The passive landfill gas extraction system was upgraded in 1991 to an active system that

includes interior landfill gas 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 landfill gas 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 occurs 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 is reported to range between 251 and 271 feet above msl. To the west (downgradient) of the landfill, groundwater within the upper aquifer reportedly occurs 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 through 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 landfill gas (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 specified in the final CAP 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 pressure and gas temperature.

3.0 2014 GROUNDWATER AND SURFACE WATER MONITORING

Water quality monitoring for groundwater and surface water was conducted at the Hansville Landfill Site by SCS on January 16th, April 17th, July 17th and 29th, and October 8th and 9th, 2014. Dual sampling crews were utilized during the first two calendar quarters, which permitted the water quality monitoring activities to be completed during the course of a single field day. During the second half of 2014, 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. During July 2014, surface water station SW-7 had to be relocated approximately 1,200 feet downslope of its original location due to unstable slopes and downed woody debris restricting safe access. A request to permanently relocate the SW-7 monitoring station to a safer section within the drainage was approved by Ecology and the KPHD in August. The new SW7 sampling location is shown on Figure 2.

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 2014 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 2014 quarterly event. Analytical results for the fourth quarter 2014 are tabulated in Appendix B. Summary data tables for the three preceding 2014 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 third quarter nitrate, nitrite, and orthophosphate samples, no significant data quality issues were identified for the 2014 analytical data set. Due to an express shipping delay, the laboratory ran these third quarter analytes slightly outside their recommended

48 hour holding time. Where appropriate, qualifiers were added to the reported results, as noted on each 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 2014 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 2014 monitoring event are presented in Table 1 (Appendix B). A potentiometric surface map illustrating groundwater flow across the Site on October 8-9th, 2014 is presented as Figure 4 (Appendix B). Tabulated groundwater data and groundwater contour maps previously reported for the first three quarters of the 2014 monitoring year are attached in Appendix C.

Water table elevations measured over the current reporting period remained generally stable, ranging between 236.42 feet msl (MW-12I in October) to 266.90 feet msl (MW-5 in January). The annual range of water table elevations recorded during 2014 are generally consistent with the past several year's monitoring results (SCS 2011 through 2013 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 2014 compliance period. The reported concentrations ranged between 0.0151 mg/L (in January) and 0.0246 mg/L (in October). Low, but detectable, levels of arsenic (ranging from 0.00087 mg/L at MW-7 in October to 0.00356 mg/L at MW-13D in July) 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 2014, 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 January and April) to 2.8 mg/L (in October). The July 2014 manganese result (2.2 mg/L) remained slightly below the cleanup level. 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 2014 reporting period. These exceedances were detected in MW-6 (ranging from 0.19 µg/L in October to 0.51 µg/L in January), MW-12I (ranging from 0.089 µg/L in April to 0.28

µg/L in July) and MW-14 (ranging from 0.14 µg/L in October to 0.21 µg/L in April). On average, vinyl chloride concentrations were lower in October than during the three preceding quarters. A full EPA 8260 analysis conducted during the January 2014 event reported sporadic, low-level detections of four additional VOCs, including 1,1-dichloroethane, ethyl ether, 1,1-dichloroethene (total), and cis-1,2-dichloroethene in the groundwater samples. However, none of these latter VOC detections approached their respective groundwater protection standards. Similar low levels of these same four VOCs were reported during the full EPA 8260 scan conducted in January 2013. 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 2014 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.

Reducing groundwater conditions were typically observed during 2014 in downgradient wells MW-6, MW-13D and MW-14. These wells generally reported the lowest dissolved oxygen (0.10 to 0.98 mg/L) and redox (-50 to 288 mV) levels. It should be noted, however, that anomalously elevated redox measurements reported at several downgradient wells during the July and October events are suspected to have been related to a field meter malfunction. The most oxidized groundwater conditions were noted 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 2014, with sulfate concentrations ranging from 3.5 mg/L (MW-7 in October) to 26 mg/L (MW-6 in July) and TOC concentrations ranging from < 1 mg/L (MW-6 in January and April, and MW-5 and 13D throughout the year) to 2.9 mg/L (MW-12I in July). Also, similar to previous years, orthophosphate was not detected in any of the groundwater (or surface water) samples analyzed during the 2014 monitoring period.

The geochemical indicator parameter results reported during 2014 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 2014 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 0.00083 mg/L (SW-1 in July) to 0.00246 mg/L (SW-6 in October). Manganese concentrations ranged between < 0.001 mg/L (SW-1 in April and July) to 0.067 mg/L (SW-6 in October).

As reported for previous monitoring years, surface water stations SW-4 and SW-6, which are situated immediately west (downgradient) of the landfill, generally report the highest levels of site COCs and related landfill indicator parameters. However, the levels of arsenic and vinyl chloride observed at these locations during 2014 remain substantially reduced from those initially reported at the Site. Similarly, levels of chloride (ranging from 3.2 mg/L [SW-6 and SW-7 in April] to 18 mg/L [SW-4 in July]), sulfate (ranging from 6.4 mg/L [SW-6 in April] to 28 mg/L [SW-4 in July]), TOC (ranging from 1.5 mg/L [SW-1 in October] to 24 mg/L [SW-6 in January]), and ammonia (< 0.030 mg/L at all locations, except for 0.037 mg/L detected at SW-1 in April) at these locations have also declined over the same period. In addition, orthophosphate was not detected in any of the surface water monitoring locations during 2014.

3.2 STATISTICAL EVALUATION

Consistent with Appendix D of the final Hansville Landfill CAP, groundwater data reported for the 2014 monitoring period were statistically evaluated for selected site COCs. Vinyl chloride and arsenic groundwater results that exceeded their respective site-specific cleanup standards during 2014 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. 2012.1) 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 B-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 2014 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.

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. Although a statistically significant negative Mann-Kendall trend was calculated for vinyl chloride in this well, a decreasing 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.

As shown on Table D-1, follow-up Sens Slope tests for these same wells confirmed a statistically significant decreasing trend in vinyl chloride levels in MW-12I. 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 2014 (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 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. Similar to previous reporting years, the 2014 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. 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 2014 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 2014 vinyl chloride results in downgradient wells MW-6, MW-12I, and MW-14 (which were 0.318 µg/L, 0.205 µg/L and 0.168 µg/L, respectively) exceeded the 0.025 µg/L site specific cleanup level. The calculated UCLs and LCLs for vinyl chloride in these same three groundwater monitoring wells also continue to exceed this parameter's site specific cleanup level. UCL/LCL values could not be calculated for vinyl chloride in MW-5, MW-7 or MW-13D for 2014 because insufficient detections (one or less) were reported in these wells during the current reporting period. The latter detections remained well below the 0.025 µg/L cleanup level.

The calculated mean, UCL, and LCL for arsenic in MW-14 (0.01783 mg/L, 0.02316 mg/L and 0.01250 mg/L, respectively) all exceeded the parameter's 0.005 mg/L site specific cleanup level. However, 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 2014 LANDFILL GAS MONITORING

During 2014, 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.

Improvements to the LFG collection system, including the installation of a new pair of high efficiency blowers, were completed during 2013. 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. The wellhead upgrades are intended to allow for better flow control and system monitoring at these individual extraction wells. The new wellheads will enable the more precise tuning of the well field at these locations with the goal of safely enhancing the removal of LFG and associated VOCs, including vinyl chloride.

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 inherent 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 2014 are presented in Table 4 (Appendix B). LFG monitoring data tables that were previously reported during the preceding 2014 quarters are also attached in Appendix C.

Over the first three quarters of 2014, the LFG blowers operated using adjusted air flows that ranged between 39 and 41 standard cubic feet per minute (scfm). In mid-September, the flow control valves on the majority of the LFG extraction wells were fully opened, and the adjusted air flow at the blowers was increased to rates as high as 257 scfm. However, the air flow was subsequently reduced to 170 scfm during the fourth quarter to reduce the risk of overdrawing the extraction wells and possibly creating aerobic conditions that could promote subsurface combustion. After wellhead upgrades (see preceding section) were completed in December, the extraction well valves were tightened, and the adjusted air flow at the blower was further reduced to 85 scfm. Over the entire 2014 reporting period, the adjusted air flow measured through the system ranged between 39 and 257 scfm.

During the fourth quarter of 2014, methane concentrations measured within the active landfill extraction system ranged between 0.0 and 20.3 methane (by percent volume). A similar range of methane concentrations were reported in the active extraction system during preceding 2014 quarters. LFG temperatures measured within the extraction well field during 2014 ranged

between 26 and 73 degrees ⁰F. 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 2014, detectable methane concentrations were not reported above the equipment detection limits in any of the perimeter gas probes. Over the 2014 reporting year, oxygen concentrations in the perimeter probes ranged between 13.7 and 20.9 percent volume, with most measurements remaining near ambient conditions. Carbon dioxide levels measured during the reporting period ranged between 0.0 and 5.6 percent volume.

The 2014 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 2014 reporting period.

5.0 REFERENCES

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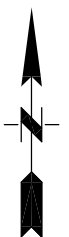
Appendix A

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.
04211017.04

SCALE
NA

CAD FILE
FIGURE 1

DES BY
L.L.

CHK BY
D.V.

APP BY
G.H.

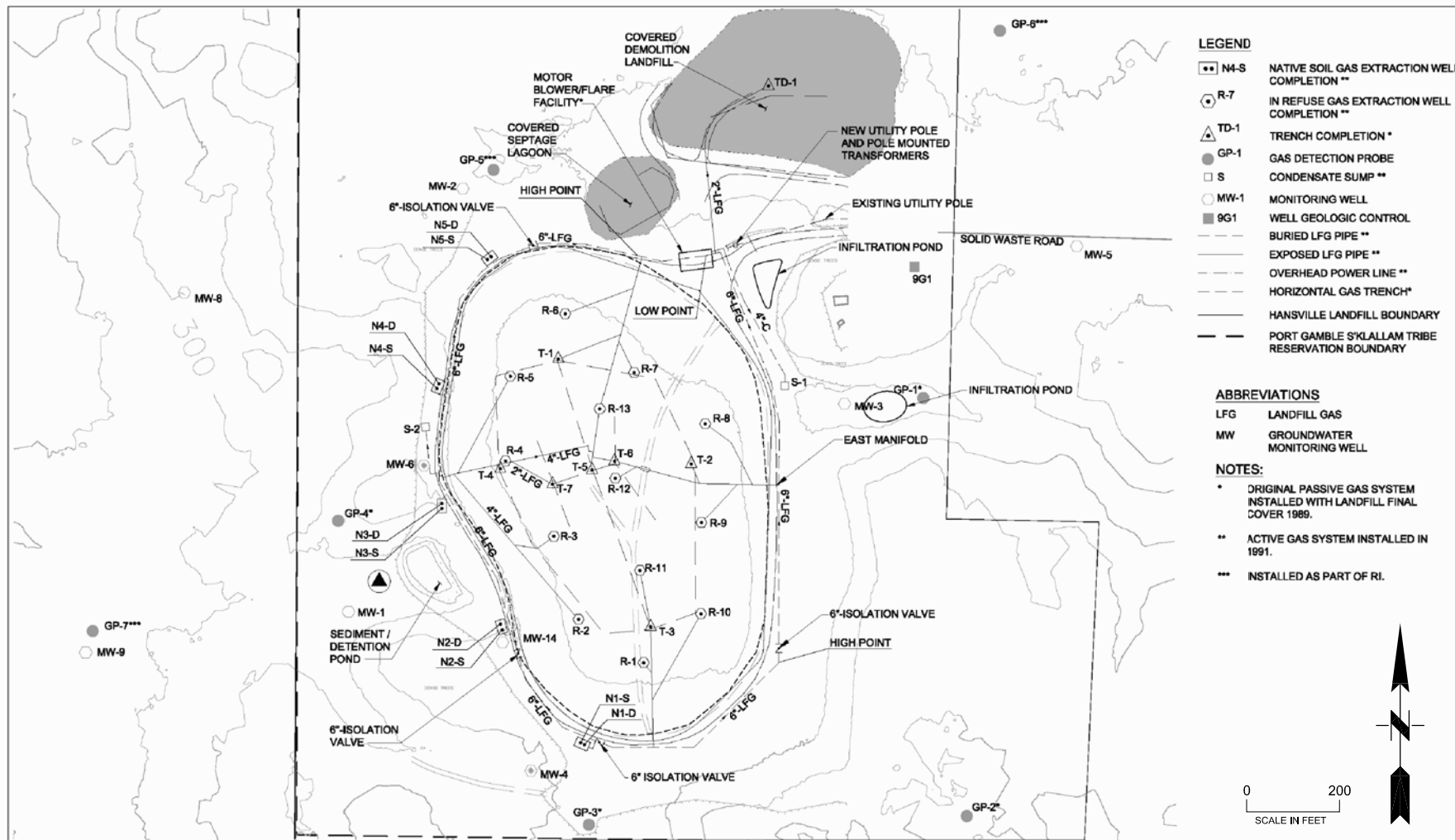
LANDFILL PROPERTY LOCATION MAP

HANSVILLE LANDFILL SITE
KITSAP COUNTY, WASHINGTON

DATE
JAN 2015

FIGURE

1



BASE MAP SOURCE: PARAMETRIX, 2004

SCS ENGINEERS

Environmental Consultants and Contractors

2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO.
04211017.04

SCALE
AS SHOWN

CAD FILE
FIGURE 3

DES BY
L.L.

CHK BY
D.V.

APP BY
G.H.

LANDFILL GAS SYSTEM & PROBE LOCATIONS

HANSVILLE LANDFILL
KITSAP COUNTY, WASHINGTON

DATE
JAN 2015

FIGURE
3

Appendix B

Fourth Quarter (October) 2014 Summary Data Tables For Groundwater, Surface Water and Landfill Gas & October 2014 Groundwater Contour Map

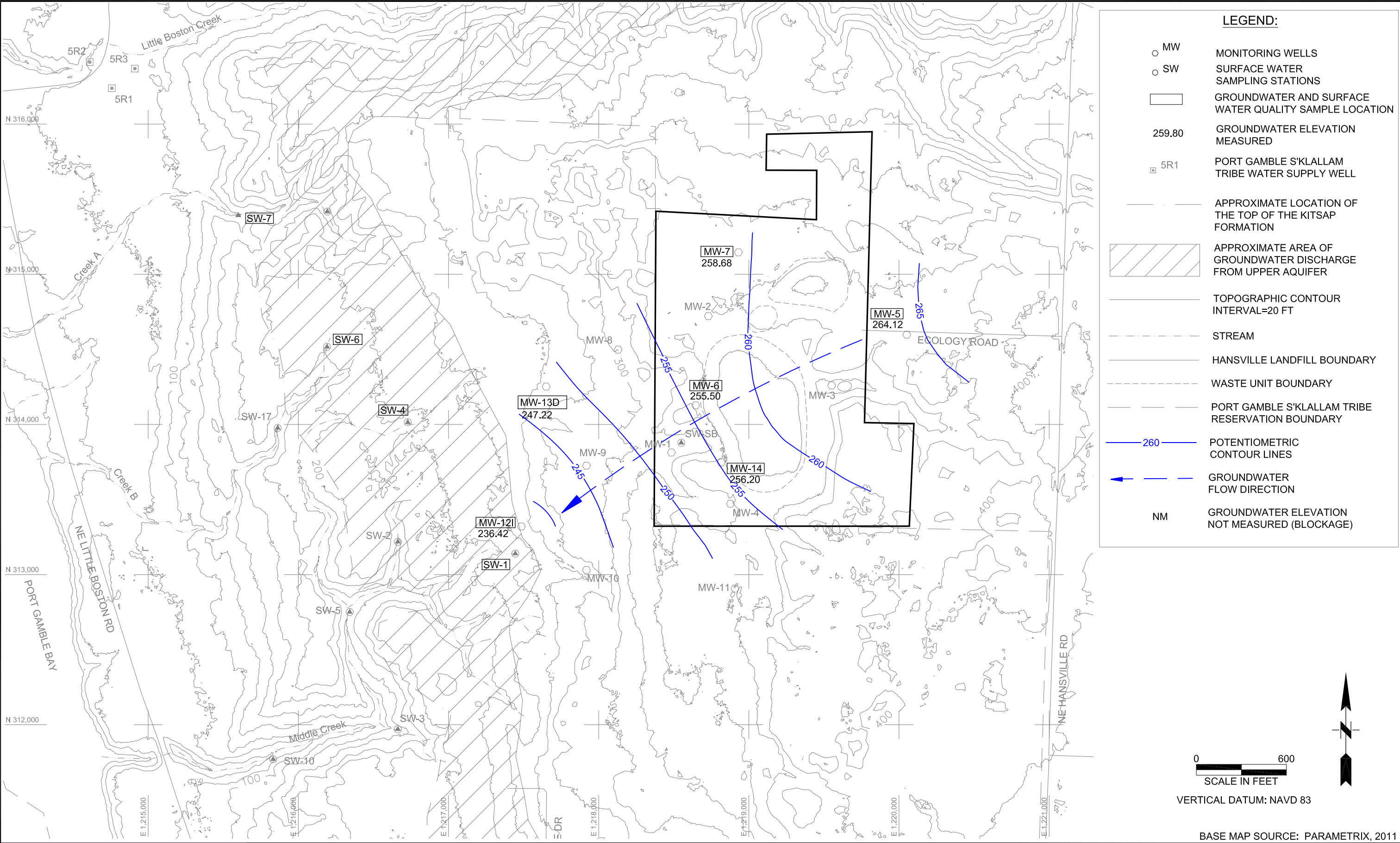
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**Table 1. Water Level Elevations, Fourth Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 8-9, 2014**

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	102.78	264.12
MW-6	332.0	332.7	260	245	77.20	255.50
MW-7	344.3	346.0	259	244	87.32	258.68
MW-12I	245.6	248.1	217	207	11.68	236.42
MW-13D	258.1	260.4	205	195	13.18	247.22
MW-14	338.6	341.1	262	247	84.90	256.20

PVC: PVC wellhead casing measuring point elevation.

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



**Table 2. Groundwater Quality Data, Fourth Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 8-9, 2014**

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)		6.89	0.43	--	1.75	0.29	0.33	0.69	--
pH (units)		7.32	7.08	--	6.84	7.13	7.52	7.01	--
Specific Conductivity (uS)		136	481	--	280	208	216	382	--
Temperature (degrees C)		10.8	16.3	--	12.4	10.6	16.1	12.8	--
Redox (Mv)		293	266	--	55	42	280	138	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		54	150	140	140	98	84	140	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.034	--
Bicarbonate		54	150	140	140	98	84	140	--
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	25	25	1.5	3.5	6.1	19	--
Nitrate (As N)		0.66	6.3	6.3	0.5 U	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.84	0.83	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		7.2	25	25	3.5	7.1	17	16	--
Total Organic Carbon (TOC)		1.0 U	1.1	1.1	1.4	2.3	1.0 U	2.0	--
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	0.00194	0.00181	0.00160	0.00106	0.00229	0.00346	0.0246	--
Manganese	2.24	0.001 U	0.490	0.510	0.001 U	0.059	0.029	2.8	--
Volatile Organics Compounds (ug/L) - only vinyl chloride using EPA method 8260 SIM									
Vinyl chloride	0.025	0.020 U	0.19	0.19	0.020 U	0.23	0.020 U	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.

* Monitoring wells were sampled on October 8, 2014.

Shaded results exceed site cleanup levels.

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

**Table 3. Surface Water Quality Data, Fourth Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 8, 2014**

Parameter	Site Cleanup Level (SCL) ¹	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		7.00	7.14	6.26	7.48	--
pH (units)		7.57	7.65	6.83	6.77	--
Specific Conductivity (uS)		290	438	128	209	--
Temperature (degrees C)		12.1	12.8	13.5	13.0	--
Redox (Mv)		346	329	322	348	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		100	170	39	73	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		100	170	39	73	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		8.3	17	3.9	3.7	--
Nitrate (As N)		3.1	1.1	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		18	25	14	8.2	--
Total Organic Carbon (TOC)		1.5	5.3	19	7.4	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00094	0.00188	0.00246	0.00176	--
Manganese	2.24	0.0018	0.057	0.067	0.021	--
Volatile Organics Compounds (ug/L) - only vinyl chloride analyzed 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.

U Compound not detected at reporting limit.

-- Not Tested.

Shaded results exceed site cleanup levels.

**Table 4. Landfill Gas Data, Fourth Quarter 2014 Monitoring
Perimeter Probes, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Rel Press (H2O inch)	Comments
Probe 1	12/18/2014 8:34	0	0.6	20.7	78.7			-0.14	
Probe 2 Deep	12/18/2014 8:48	0	0.8	18.6	80.6			-0.28	
Probe 2 Middle	12/18/2014 8:44	0	1.1	19.2	79.7			-0.26	
Probe 2 Shallow	12/18/2014 8:40	0	0	20.8	79.2			-0.2	
Probe 3	12/18/2014 8:58	0	1.4	20	78.6			-0.17	
Probe 4	12/18/2014 9:09	0	2.1	19.2	78.7			1.97	
Probe 5	12/18/2014 9:41	0	1.6	19.5	78.9			-0.27	
Probe 6	12/18/2014 9:49	0	5.2	15.1	79.7			-0.22	
Probe 7	12/18/2014 9:20	0	3	18.5	78.5			-0.19	
Field Technician and Weather Conditions									
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction			
BB	12/18/14	47	29.6	Cloudy	Calm	W			

**Table 4 (continued). Landfill Gas Data, Fourth Quarter 2014 Monitoring
Extraction Well Field, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Extraction Well 001	12/18/2014 9:16	8.2	10.7	0.1	81	-0.6	-0.6	54	54	5	5			No Change
Extraction Well 001	12/30/2014 9:01	6	7.1	7.8	79.1	-1.4	-1.3	35	35	4	2			Closed valve > 1 turn
Extraction Well 002	12/18/2014 9:14	2.8	11.3	7.7	78.2	-0.7	-0.7	53	53	5	5			No Change
Extraction Well 002	12/30/2014 8:57	2	9.6	10.1	78.3	-1.5	-1.4	36	36	5	2			Closed valve > 1 turn
Extraction Well 003	12/18/2014 9:12	13.9	11.3	0	74.8	-0.7	-0.7	52	52	5	5			No Change
Extraction Well 003	12/30/2014 8:53	6.1	8.5	8.5	76.9	-1.2	-1.2	34	34		0	-1.58		
Extraction Well 004	12/18/2014 9:06	3.5	9.8	8.2	78.5	-0.7	-0.7	56	56	4	4			No Change
Extraction Well 004	12/30/2014 8:43	2.3	7.2	11.7	78.8	-1.4	-1.4	41	41	5	2			Closed valve > 1 turn
Extraction Well 005	12/18/2014 8:48	2.4	12.4	5.4	79.8	-0.7	-0.7	48	48	5	5			No Change
Extraction Well 005	12/30/2014 8:05	1.8	11.7	7.4	79.1	-1.1	-1.1	31	31	6	3			Closed valve > 1 turn
Extraction Well 006	12/18/2014 8:45	2.2	10.3	9.6	77.9	-0.7	-0.7	48	48	6	6			No Change
Extraction Well 006	12/30/2014 7:59	0.3	5	16	78.7	-1	-1	26	26		0	-1.28		
Extraction Well 007	12/18/2014 8:42	4.6	15.1	0.6	79.7	-0.5	-0.5	55	55	7	7			No Change
Extraction Well 007	12/30/2014 7:52	4.1	13.6	3	79.3	-0.9	-0.8	49	46	5	2			Closed valve > 1 turn
Extraction Well 008	12/18/2014 8:37	8.4	16.1	0.6	74.9	-0.5	-0.5	51	51	5	5			No Change
Extraction Well 008	12/30/2014 7:42	8.1	15.4	1.5	75	-1.1	-1	40	40	6	3			Closed valve > 1 turn
Extraction Well 009	12/18/2014 8:56	1.6	13.8	3.1	81.5	-0.8	-0.8	55	55	7	7			No Change
Extraction Well 009	12/30/2014 8:19	1.1	11.9	6.1	80.9	-1.3	-1.3	33	33	6	3			Closed valve > 1 turn
Extraction Well 010	12/18/2014 9:21	6.5	10.2	2.4	80.9	-0.6	-0.6	50	50	4	4			No Change
Extraction Well 010	12/30/2014 9:09	6.5	9.6	4.3	79.6	-1.5	-1.5	34	34	5	3			Closed valve > 1 turn
Extraction Well 011	12/18/2014 9:23	7.3	3.7	5.2	83.8	-0.6	-0.6	50	50	4	4			No Change
Extraction Well 011	12/30/2014 9:13	5.8	3.8	5.7	84.7	-1.2	-1.2	29	29	0	0	-1.53		
Extraction Well 012	12/18/2014 9:01	19.2	3.6	0.2	77	-0.7	-0.7	58	58	5	5			No Change
Extraction Well 012	12/30/2014 8:28	14.2	3.8	2.5	79.5	-1.1	-1.1	27	27		0	-1.37		
Extraction Well 013	12/18/2014 8:53	3.2	10	4.2	82.6	-0.6	-0.6	55	55	4	4			No Change
Extraction Well 013	12/30/2014 8:14	3	9.7	4.9	82.4	-1.3	-1.1	32	32	5	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:25	0	3.7	16.9	79.4	-0.4	-0.4	52	52	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:20	0	2.8	17.9	79.3	-1.5	-1	35	35	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:19	0	3.5	17.1	79.4	-0.3	-0.3	52	52	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:18	0	2	18.9	79.1	-1	-0.9	33	33	6	2			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:32	0	1.4	20	78.6	-0.2	-0.2	49	49	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:24	0	1.1	20	78.9	-1.1	-1	34	34	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:29	0	3.2	17.7	79.1	-0.1	-0.1	49	49	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:22	0	2	19.1	78.9	-1.1	-0.9	32	32	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:41	0	4	17	79	-0.4	-0.4	51	51	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:29	0	3.4	17.7	78.9	-1.6	-1.1	36	36	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:37	0	4.8	16.1	79.1	-0.4	-0.4	50	50	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:27	0	3.6	17.3	79.1	-1.6	-1.2	37	37	5	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:15	0	2.2	19.2	78.6	-0.5	-0.5	50	50	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:33	0	2.1	19.2	78.7	-1.7	-1.2	37	37	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:11	0	3.3	17.9	78.8	-0.6	-0.6	51	51	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:31	0	3.1	18.3	78.6	-1.7	-1.6	38	38	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:01	0	1.9	19.1	79	-0.6	-0.6	51	51	5	5			No Change
Native Soil Extraction Well	12/18/2014 10:01	0	1.9	19.1	79	-0.6	-0.6	51	51	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:37	0	1.8	19	79.2	-1.8	-1.3	39	39	6	3			Closed valve > 1 turn
Native Soil Extraction Well	12/18/2014 10:08	0	3.2	17.2	79.6	-0.6	-0.6	51	51	5	5			No Change
Native Soil Extraction Well	12/30/2014 9:35	0	3.1	17.5	79.4	-1.8	-1.5	40	40	6	3			Closed valve > 1 turn
Trench Well TD-1	12/18/2014 8:33	2.2	20.4	0	77.4	-0.1	-0.1	47	47	7	7			No Change
Trench Well TD-1	12/30/2014 7:29	0	0.3	20.4	79.3	-0.1	0	33	33	7	2			Closed valve > 1 turn

**Table 4 (continued). Landfill Gas Data, Fourth Quarter 2014 Monitoring
Extraction Well Field, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Trench Well TR-1	12/18/2014 8:51	2.9	14.3	1.7	81.1	-0.6	-0.6	53	54	5	5			No Change
Trench Well TR-1	12/30/2014 8:10	0.9	17.1	0.8	81.2	-1.1	-1.1	33	33	7	3			Closed valve > 1 turn
Trench Well TR-2	12/18/2014 8:39	15.2	15.3	0	69.5	-0.6	-0.6	45	45	6	6			No Change
Trench Well TR-2	12/30/2014 7:47	6.7	13.6	3.7	76	-1	-1	27	27	5	2			Closed valve > 1 turn
Trench Well TR-3	12/18/2014 9:19	12	14	0	74	-0.6	-0.6	52	52	5	5			No Change
Trench Well TR-3	12/30/2014 9:04	8.2	15.4	0.4	76	-1.4	-1.3	38	38	6	2			Closed valve > 1 turn
Trench Well TR-4	12/18/2014 9:08	4.2	16.9	0	78.9	-0.7	-0.7	54	54	6	6			No Change
Trench Well TR-4	12/30/2014 8:46	2.8	17	0.5	79.7	-1.4	-1.3	39	39	7	3			Closed valve > 1 turn
Trench Well TR-5	12/18/2014 9:03	6.7	16	0.3	77	-0.7	-0.7	58	58	8	8			No Change
Trench Well TR-5	12/30/2014 8:37	7	13.2	4.6	75.2	-1.3	-1.2	38	38	8	3			Closed valve > 1 turn
Trench Well TR-6	12/18/2014 9:00	20.3	13.6	0.1	66	-0.7	-0.7	57	57	6	6			No Change
Trench Well TR-6	12/30/2014 8:34	13.6	11.1	3.5	71.8	-1.4	-1.4	35	35	4	2			Closed valve > 1 turn
Trench Well TR-7	12/18/2014 9:10	18.3	16.4	0	65.3	-0.6	-0.6	52	52	6	6			No Change
Trench Well TR-7	12/30/2014 8:50	20.1	11.9	0.1	67.9	-1.3	-1.3	37	37		0	-1.5		
Well with minimum temperature during reporting period														
Extraction Well 006	12/30/2014 7:59	Init = 26 Adj = 26												
Well with maximum temperature during reporting period														
Extraction Well 012	12/18/2014 9:01	Init = 58 Adj = 58												
Trench Well TR-5	12/18/2014 9:03	Init = 58 Adj = 58												
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
BB	12/18/14	47	29.53	Cloudy	Calm	W								
BB	12/30/14	31	30.44	Partly Cloudy	Breezy Wind	E								

**Table 4 (continued): Landfill Gas Data, Fourth Quarter 2014 Monitoring
Sample Ports, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Blower Inlet	12/18/2014 9:30	4.7	10.3	7.5	77.5	-1.1	-1.1	55	55	165	165			No Change
Blower Inlet	12/30/2014 9:40	3.2	10.8	7.9	78.1	-2.2	-2.1	38	38	77	77			No Change
Blower Outlet	12/18/2014 9:31	4.9	10.6	7.2	77.3	0.5	0.5	55	55	170	170			No Change
Blower Outlet	12/30/2014 9:42	3.2	10.9	7.9	78	0.7	0.6	47	47	85	85			No Change
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
BB	12/18/14	47	29.53	Cloudy	Calm	W								
BB	12/30/14	31	30.44	Partly Cloudy	Breezy Wind	E								

Appendix C

Summary of Previous Quarter Monitoring Results (Q3, Q2 and Q1 2014)

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**Q3 - JULY 2014 SUMMARY TABLES
& GROUNDWATER FLOW MAP**

**Table A-1. Water Level Elevations, Third Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, July 29, 2014**

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	102.13	264.77
MW-6	332.0	332.7	260	245	75.80	256.90
MW-7	344.3	346.0	259	244	86.50	259.50
MW-12I	245.6	248.1	217	207	10.92	237.18
MW-13D	258.1	260.4	205	195	12.25	248.15
MW-14	338.6	341.1	262	247	84.10	257.00

PVC: PVC wellhead casing measuring point elevation.

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

**Table A-2. Groundwater Quality Data, Third Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, July 29, 2014**

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)		8.91	0.98	--	2.03	0.32	0.34	0.52	--
pH (units)		7.17	6.5	--	6.69	MF	MF	MF	--
Specific Conductivity (uS)		142	399	--	304	168	220	326	--
Temperature (degrees C)		11.7	16.4	--	10.8	11.7	11.1	15.0	--
Redox (Mv)		140	104	--	177	563	211	80	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		54	120	120	150	72	82	120	--
Ammonia (As N)		0.030	0.030	0.030	0.030	0.030	0.030	0.041	--
Bicarbonate		54	120	120	150	72	82	120	--
Carbonate		5.0	5.0	5.0	5.0	5.0	5.0	5.0	--
Chloride		2.8	23	23	1.2	2.6	6.2	11	--
Nitrate (As N)		0.67	3.5	3.4	0.5	0.5	0.5	0.5	--
Nitrite (As N)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	--
Sulfate		8.1	26	26	3.9	5.0	18	18	--
Total Organic Carbon (TOC)		1.0	1.1	1.1	1.6	2.9	1.0	1.5	--
Orthophosphate (As P)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00176	0.00210	0.00220	0.00095	0.00219	0.00356	0.0160	--
Manganese	2.24	0.001	0.430	0.420	0.001	0.054	0.030	2.2	--
Volatile Organics Compounds (ug/L) - only vinyl chloride using EPA method 8260 SIM									
Vinyl chloride	0.025	0.020	0.35	0.35	0.020	0.28	0.020	0.16	0.020

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

-- Not Tested.

Shaded results exceed site cleanup levels.

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

U Compound not detected at reporting limit.

MF Field meter probe for pH failed, probe would not calibrate.

Table A-3. Surface Water Quality Data, Third Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, July 17, 2014

Parameter	Site Cleanup Level (SCL) ¹	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		6.18	8.14	Dry	2.84	--
pH (units)		7.30	7.58	Dry	6.77	--
Specific Conductivity (uS)		248	466	Dry	321	--
Temperature (degrees C)		11.7	12.4	Dry	12.9	--
Redox (Mv)		136	291	Dry	309	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		98	180	Dry	73	--
Ammonia (As N)		0.030	U	Dry	0.030	U
Bicarbonate		98	180	Dry	73	--
Carbonate		5.0	U	Dry	5.0	U
Chloride		8.6	18	Dry	3.5	--
Nitrate (As N)		3.1	H	Dry	0.5	UH
Nitrite (As N)		0.5	UH	Dry	0.5	UH
Sulfate		20	28	Dry	9.0	--
Total Organic Carbon (TOC)		1.7	3.2	Dry	6.0	--
Orthophosphate (As P)		0.5	UH	Dry	0.5	UH
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00083	0.00176	Dry	0.00162	--
Manganese	2.24	0.001	U	Dry	0.0053	--
Volatile Organics Compounds (ug/L) - only vinyl chloride analyzed using EPA method 8260 SIM.						
Vinyl chloride	0.025	0.020	U	Dry	0.020	U

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

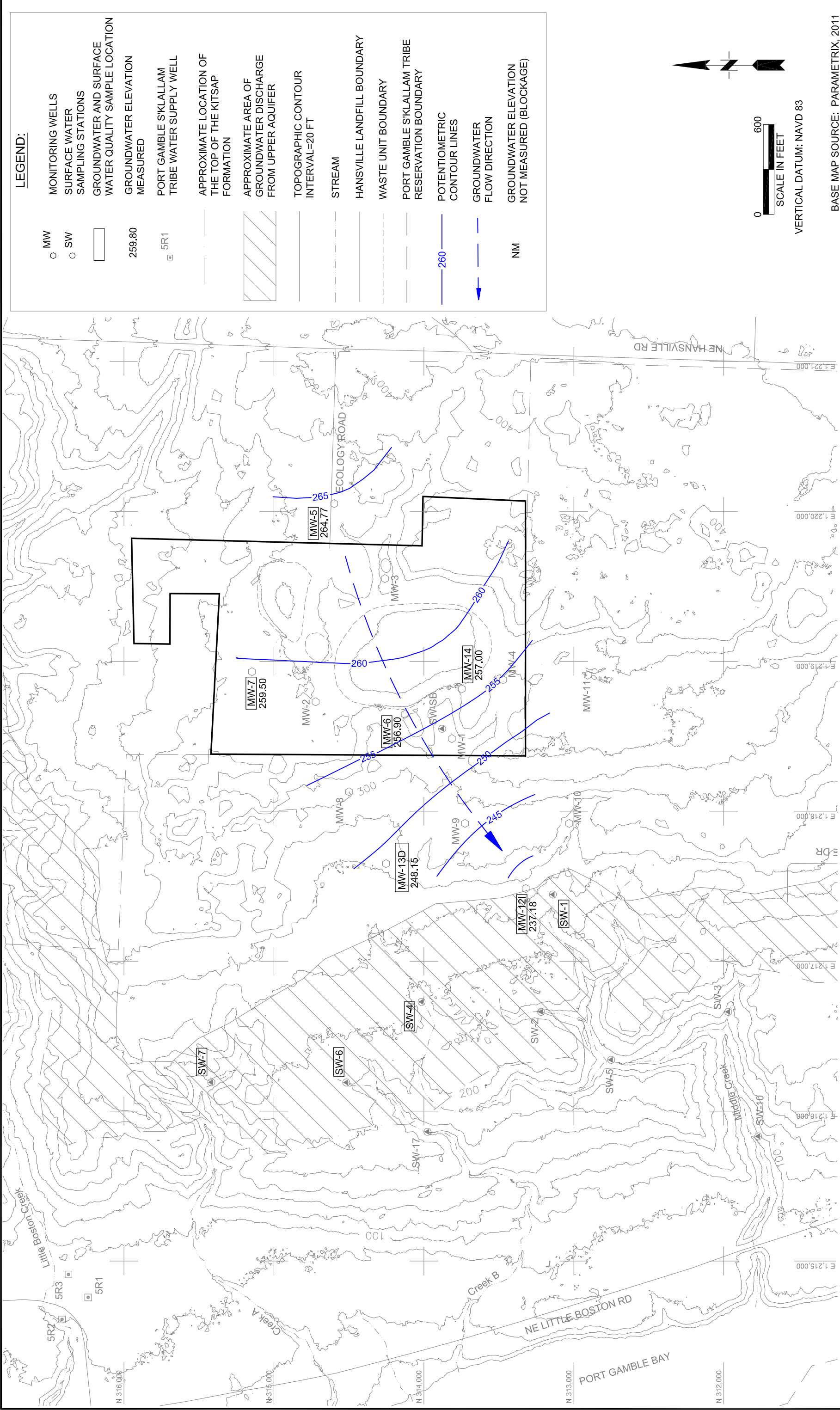
-- Not Tested.

Shaded results exceed site cleanup levels.

U Compound not detected at reporting limit.

H 48 hour holding time was exceeded due to express shipping delay.

Dry Insufficient flow was present to collect a surface water sample.



LEGEND:

- MW
- SW
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- GROUNDWATER ELEVATION MEASURED
- 259.80
- 5R1
- 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
- POTENTIOMETRIC CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- NM

VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

PROJECT NO.	DES BY	L.L.
042110017.03		
SCALE	CHK BY	D.V.
AS SHOWN		
CAD FILE	APP BY	G.H.
FIGURE A-1		

	UPPER AQUIFER GROUNDWATER CONTOURS JULY 29, 2014	DATE	AUG 2014
	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE	A-1

**Table C-1 . Landfill Gas Data, Third Quarter 2014 Monitoring
Perimeter Probes, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Rel Press (H2O inch)	Comments
Probe 1	9/17/2014 9:53	0	2.4	17.6	80			0.12	
Probe 2 Deep	9/17/2014 10:04	0	0.8	18.5	80.7			0.35	
Probe 2 Middle	9/17/2014 10:02	0	0.9	19.4	79.7			0.28	
Probe 2 Shallow	9/17/2014 9:59	0	1	19.3	79.7			0.14	
Probe 3	9/17/2014 10:25	0	0.8	20.5	78.7			0.05	
Probe 4	9/17/2014 10:16	0	1.4	20	78.6			0.04	
Probe 5	9/17/2014 9:47	0	1.4	19.2	79.4			0.09	
Probe 6	9/17/2014 9:43	0	4.9	13.8	81.3			0.12	
Probe 7	9/17/2014 10:20	0	1.2	20.3	78.5			0.05	
Field Technician and Weather Conditions									
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction			
BB	09/17/14	66	29.42	Cloudy	Calm	NW			

**Table C-1 (continued). Landfill Gas Data, Third Quarter 2014 Monitoring
Extraction Well Field, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Extraction Well 001	9/17/2014 8:31	11.2	9.3	0	79.5	0.1	-0.2	70	68	2	9			Opened valve > 1 turn; Valve 100% Open
Extraction Well 002	9/17/2014 8:35	0	4	12.7	83.3	0.1	-0.3	72	71	0	5			Opened valve > 1 turn; Valve 100% Open
Extraction Well 003	9/17/2014 8:39	16.3	10.1	0.2	73.4	0.1	-0.2	68	69	1	9			No Change; Opened valve > 1 turn; Valve 100% Open
Extraction Well 004	9/17/2014 7:53	0.5	11.3	2.9	85.3	0.2	-0.7	69	68	1	8			Opened valve > 1 turn; Valve 100% Open
Extraction Well 005	9/17/2014 7:48	1	15.4	0.9	82.7	0.1	-0.6	65	64	2	16			Valve 100% Open; Opened valve > 1 turn
Extraction Well 006	9/17/2014 7:40	3.6	17.4	0	79	0	-0.9	63	68	1	9			Opened valve > 1 turn; Valve 100% Open
Extraction Well 007	9/17/2014 7:36	1.6	13.1	0	85.3	0.3	-0.1	66	64	2	10			Opened valve > 1 turn; Valve 100% Open; Valve needs replacement
Extraction Well 008	9/17/2014 7:18	8.9	12.3	0	78.8	0.3	-1.9	62	60	1	14			Opened valve > 1 turn
Extraction Well 009	9/17/2014 8:16	1.8	10.9	0	87.3	0.3	-0.2	68	67	1	10			Opened valve > 1 turn; Valve 100% Open
Extraction Well 010	9/17/2014 8:20	5.7	9.2	2.6	82.5	0	-0.4	65	65	1	7			Opened valve > 1 turn; Valve 100% Open
Extraction Well 011	9/17/2014 8:24	16.6	3.6	0	79.8	0.2	-0.2	65	65	1	12			Opened valve > 1 turn; Valve 100% Open
Extraction Well 012	9/17/2014 8:08	18.4	3.3	0	78.3	0.2	-0.1	70	68	1	8			Opened valve > 1 turn; Valve 100% Open
Extraction Well 013	9/17/2014 7:32	8.8	10.6	0	80.6	0.2	-1.7	65	64	2	19			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 8:49	0.2	4.4	15	80.4	-0.2	-0.2	62	61	3	3			Opened valve 1/2 to 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 8:47	0	3.6	15.5	80.9	-0.2	-0.2	68	66	2	3			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 8:56	0	1.2	19.8	79	0.1	-0.2	67	65	0	4			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 8:54	0	4.1	15.4	80.5	0	-0.2	68	70	1	4			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 9:02	0	5.6	14	80.4	0	-0.2	70	68	1	4			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 9:00	0	4.9	14.4	80.7	0	-0.3	70	68	1	4			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 9:08	0	1.7	18.5	79.8	0.1	-0.2	70	68	0	5			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 9:05	0	2.2	18.4	79.4	0.1	-0.3	69	68	0	8			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 9:13	0	1.5	19.1	79.4	0.1	-0.2	73	73	1	5			Opened valve > 1 turn; Valve 100% Open
Native Soil Extraction Well	9/17/2014 9:11	0	2.5	17.4	80.1	0.2	-0.3	70	69	1	4			Opened valve > 1 turn; Valve 100% Open

**Table C-1 (continued). Landfill Gas Data, Third Quarter 2014 Monitoring
Extraction Well Field, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Trench Well TD-1	9/17/2014 7:13	10.7	21.5	0	67.8	0	-0.4	62	58	1	12			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-1	9/17/2014 7:44	21	13.9	0.4	64.7	0	0	63	62	0	16			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-2	9/17/2014 7:23	18.6	15	0	66.4	0.2	-0.8	60	58	1	12			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-3	9/17/2014 8:28	17.7	14	3.5	64.8	-0.1	-0.2	65	66	1	14			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-4	9/17/2014 7:56	16.2	17.8	0	66	0	-0.2	68	68	1	20			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-5	9/17/2014 8:05	0	0.3	20.9	78.8	0	-0.1	67	67	0	18			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-6	9/17/2014 8:12	20.1	5.6	7.8	66.5	0	-0.1	65	64	0	11			Opened valve > 1 turn; Valve 100% Open
Trench Well TR-7	9/17/2014 8:01	21.6	6.1	2.9	69.4	0	-0.1	68	68	0	19			Opened valve > 1 turn; Valve 100% Open
Well with minimum temperature during reporting period														
Trench Well TD-1	9/17/2014 7:13	Init = 62 Adj = 58												
Trench Well TR-2	9/17/2014 7:23	Init = 60 Adj = 58												
Well with maximum temperature during reporting period														
Native Soil Extraction Well	9/17/2014 9:13	Init = 73 Adj = 73												
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
BB	09/17/14	66	29.47	Cloudy	Calm	NW								

**Table C-1 (continued): Landfill Gas Data, Third Quarter 2014 Monitoring
Sample Ports, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Blower Inlet	7/16/2014 7:05	3.2	6.3	11.4	79.1	-7.9	-7.9	64	64	39	39			No Change
Blower Inlet	8/19/2014 9:18	3.5	6.5	11.7	78.3	-7.6	-7.6	72	72	43	43			No Change
Blower Inlet	9/17/2014 9:24	9.6	10.9	4.9	74.6	-0.5	-0.5	65	65	231	231			Opened valve 1/2 to 1 turn; Valve 100% Open
Blower Outlet	7/16/2014 7:07	3.2	6.2	11.5	79.1	0.6	0.6	80	80	40	40			No Change
Blower Outlet	8/19/2014 9:21	3.3	6.3	11.9	78.5	0.4	0.5	91	91	45	45			No Change
Blower Outlet	9/17/2014 9:27	9.7	10.8	4.9	74.6	1	0.9	83	83	257	257			No Change
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
BB	07/16/14	67	29.72	Partly Cloudy	Calm	NE								
BB	08/19/14	68	29.52	Partly Cloudy	Calm	N								
BB	09/17/14	66	29.47	Cloudy	Calm	NW								

**Q2 - APRIL 2014 SUMMARY TABLES
& GROUNDWATER FLOW MAP**

Table A-1. Water Level Elevations, Second Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, April 17, 2014

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	NM	--
MW-6	332.0	332.7	260	245	75.23	257.47
MW-7	344.3	346.0	259	244	86.13	259.87
MW-12I	245.6	248.1	217	207	10.35	237.75
MW-13D	258.1	260.4	205	195	11.62	248.78
MW-14	338.6	341.1	262	247	83.88	257.22

PVC: PVC wellhead casing measuring point elevation.

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

NM Depth to water in MW-5 could not be measured due to an obstruction within the well casing that could not be cleared by the water level transducer.

Table A-2. Groundwater Quality Data, Second Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, April 17, 2014

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)		5.58	0.40	--	1.64	0.34	0.18	0.75	--
pH (units)		7.28	6.97	--	6.61	7.38	7.49	6.92	--
Specific Conductivity (uS)		121	285	--	271	118	193	263	--
Temperature (degrees C)		12.9	15.5	--	12.3	10.4	10.6	14.4	--
Redox (Mv)		46	31	--	80.0	20	-22	-30	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		57	140	140	170	65	88	130	--
Ammonia (As N)		0.034	0.035	0.035	0.030	U	0.030	U	--
Bicarbonate		57	140	140	170	65	88	130	--
Carbonate		5.0	U	5.0	U	5.0	U	5.0	U
Chloride		2.8	16	16	1.9	2.5	6.1	6.9	--
Nitrate (As N)		0.62	0.5	U	0.5	U	0.5	U	--
Nitrite (As N)		0.5	U	0.5	U	0.5	U	0.5	U
Sulfate		9.1	25	25	5.1	4.4	19	20	--
Total Organic Carbon (TOC)		1.0	U	1.0	U	2.6	1.0	U	--
Orthophosphate (As P)		0.5	U	0.5	U	0.5	U	0.5	U
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00165	0.00213	0.00208	0.00089	0.00205	0.00301	0.0156	--
Manganese	2.24	0.001	U	0.490	0.001	U	0.038	2.5	--
Volatile Organics Compounds (ug/L) - only vinyl chloride using EPA method 8260 SIM									
Vinyl chloride	0.025	0.020	U	0.22	0.23	U	0.089	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, Second Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, April 17, 2014**

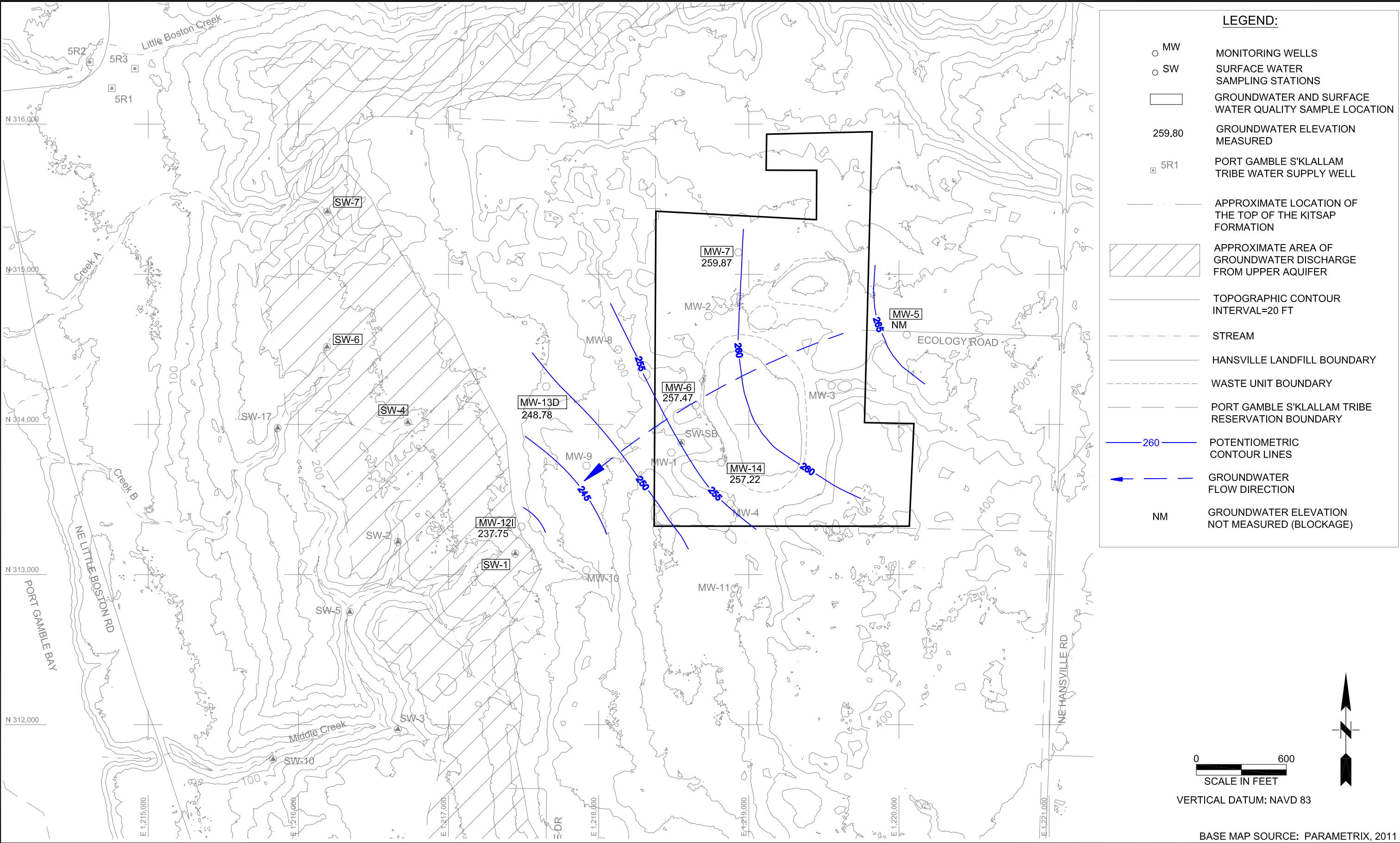
Parameter	Site Cleanup Level (SCL) ¹	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		7.73	8.26	7.77	8.16	--
pH (units)		6.60	6.95	7.05	7.88	--
Specific Conductivity (uS)		185	344	113	213	--
Temperature (degrees C)		10.1	10.0	9.9	9.6	--
Redox (Mv)		239	237	154	134	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		87	160	46	53	--
Ammonia (As N)		0.037	0.030	0.030	0.030	U
Bicarbonate		87	160	46	53	--
Carbonate		5.0	5.0	5.0	5.0	U
Chloride		4.2	15	3.2	3.2	--
Nitrate (As N)		1.8	1.2	0.5	1.0	--
Nitrite (As N)		0.5	0.5	0.5	0.5	U
Sulfate		12	24	6.4	7.7	--
Total Organic Carbon (TOC)		1.8	6.6	17	7.8	--
Orthophosphate (As P)		0.5	0.5	0.5	0.5	U
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00129	0.00171	0.00189	0.00104	--
Manganese	2.24	0.001	0.042	0.048	0.0041	--
Volatile Organics Compounds (ug/L) - only vinyl chloride analyzed using EPA method 8260 SIM.						
Vinyl chloride	0.025	0.020	0.020	0.020	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.



**Table C-1. Landfill Gas Data, Second Quarter 2014 Monitoring
Perimeter Probes, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Rel Press (H2O inch)	Comments
Probe 1	6/4/2014 9:31	0	0.8	20.2	79			0.06	
Probe 2 Deep	6/4/2014 9:44	0	0.1	20.9	79			-0.32	
Probe 2 Middle	6/4/2014 9:39	0	0.3	20.1	79.6			-0.17	
Probe 2 Shallow	6/4/2014 9:37	0	0.1	20.8	79.1			0.04	
Probe 3	6/4/2014 9:49	0	0.7	20.4	78.9			0.13	
Probe 4	6/4/2014 9:54	0	1.4	19.6	79			0.15	
Probe 5	6/4/2014 7:33	0	0.9	20.1	79			0.02	
Probe 6	6/4/2014 7:27	0	0.3	20.8	78.9			-0.01	
Probe 7	6/4/2014 9:58	0	0.6	19.8	79.6			0.14	
Field Technician and Weather Conditions									
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction			
BB	06/04/14	64	29.84	Clear	Calm	N			

**Table C-1 (continued). Landfill Gas Data, Second Quarter 2014 Monitoring
Extraction Well Field, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Extraction Well 001	6/4/2014 7:54	11.3	7.5	2.5	78.7	-0.9	-0.5	53	52	5	1			Closed valve > 1 turn
Extraction Well 002	6/4/2014 8:02	0	0.7	20.9	78.4	-0.4	-0.4	53	54	0	0			No Change
Extraction Well 003	6/4/2014 8:05	8.7	6.8	6.2	78.3	-0.8	-0.5	53	53	3	1			Closed valve > 1 turn
Extraction Well 004	6/4/2014 8:10	0	0.8	20.7	78.5	-0.4	-0.4	54	54	0	0			Valve 100% Closed
Extraction Well 005	6/4/2014 8:16	0	0.5	20.9	78.6	-0.3	0	53	53	1	0			Closed valve 1/2 to 1 turn; Valve 100% Closed
Extraction Well 006	6/4/2014 8:19	0.5	3.9	15.6	80	-0.4	-0.4	53	53	0	0			No Change
Extraction Well 007	6/4/2014 8:24	6.9	13.2	0.7	79.2	-0.7	-0.5	54	55	4	1			Closed valve > 1 turn
Extraction Well 008	6/4/2014 7:41	4.1	8.8	5.9	81.2	-0.4	-0.4	55	55	1	1			No Change
Extraction Well 009	6/4/2014 7:48	0.8	4.8	11.4	83	-0.5	-0.4	54	54	1	0			Closed valve > 1 turn; Valve 100% Closed
Extraction Well 010	6/4/2014 7:51	11.4	8.4	0.8	79.4	-0.6	-0.6	53	53	1	1			No Change
Extraction Well 011	6/4/2014 7:59	12.3	4.3	2.8	80.6	-1.2	-0.6	55	54	6	1			Closed valve > 1 turn
Extraction Well 012	6/4/2014 8:35	15.3	1.4	6.3	77	-1	-0.7	55	55	3	1			Closed valve > 1 turn
Extraction Well 013	6/4/2014 8:27	8.7	6.8	5.4	79.1	-0.7	-0.6	55	55	2	1			Closed valve 1/2 to 1 turn
Native Soil Extraction Well	6/4/2014 9:02	0.1	5.4	14.1	80.4	-1.9	-1.9	61	61	2	2			No Change
Native Soil Extraction Well	6/4/2014 9:00	0	3.5	14.8	81.7	-1.9	-1.8	63	63	3	2			Closed valve > 1 turn
Native Soil Extraction Well	6/4/2014 9:06	0	1.8	19	79.2	-2.3	-0.9	59	59	5	2			Closed valve > 1 turn
Native Soil Extraction Well	6/4/2014 9:05	0	5	14.4	80.6	-1.9	-0.9	59	59	5	2			Closed valve > 1 turn
Native Soil Extraction Well	6/4/2014 9:10	0	2.6	17.5	79.9	-0.5	-0.5	58	58	2	2			No Change
Native Soil Extraction Well	6/4/2014 9:09	0	2.8	16.8	80.4	-0.4	-0.4	59	59	5	2			No Change
Native Soil Extraction Well	6/4/2014 9:15	0	1.8	18.7	79.5	-0.9	-0.8	57	56	2	2			No Change
Native Soil Extraction Well	6/4/2014 9:13	0	2.7	17	80.3	-0.8	-0.8	58	58	2	2			No Change
Native Soil Extraction Well	6/4/2014 9:18	0	1.7	19.4	78.9	-0.2	-0.2	57	57	5	2			No Change
Native Soil Extraction Well	6/4/2014 9:17	0	1.6	17.7	80.7	-0.8	-0.8	56	56	2	2			No Change
Trench Well TR-1	6/4/2014 7:23	3.9	17.2	0.1	78.8	0	0	59	58	4	1			Closed valve > 1 turn
Trench Well TR-1	6/4/2014 8:22	6.2	9.2	6.2	78.4	-0.5	-0.4	53	53	2	1			Closed valve 1/2 to 1 turn
Trench Well TR-2	6/4/2014 7:44	9.4	11.2	3.7	75.7	-0.5	-0.5	55	54	3	1			Closed valve > 1 turn
Trench Well TR-3	6/4/2014 7:57	11.1	13	1.6	74.3	-0.8	-0.5	53	53	6	1			Closed valve > 1 turn
Trench Well TR-4	6/4/2014 8:13	5.7	12.9	3.1	78.3	-0.5	-0.5	53	53	2	1			Closed valve 1/2 to 1 turn
Trench Well TR-5	6/4/2014 8:30	8.9	9.6	6.1	75.4	-0.5	-0.5	55	55	3	1			Closed valve > 1 turn
Trench Well TR-6	6/4/2014 8:32	14.7	11.1	2.3	71.9	-0.5	-0.5	55	55	3	1			Closed valve > 1 turn
Trench Well TR-7	6/4/2014 8:09	12.6	10.3	4	73.1	-0.5	-0.5	54	54	2	1			Closed valve 1/2 to 1 turn
Well with minimum temperature during reporting period														
Extraction Well 001	6/4/2014 7:54	Init = 53 Adj = 52												
Well with maximum temperature during reporting period														
Native Soil Extraction Well	6/4/2014 9:00	Init = 63 Adj = 63												
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
BB	06/04/14	64	29.81	Clear	Calm	N								

**Table C-1 (continued): Landfill Gas Data, Second Quarter 2014 Monitoring
Sample Ports, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Blower Inlet	6/4/2014 9:23	2.3	6	12	79.7	-7.6	-7.6	61	61	40	40			No Change
Blower Outlet	6/4/2014 9:25	2.5	6.3	11.7	79.5	0.7	1.2	60	60	41	41			No Change
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
BB	06/04/14	64	29.81	Clear	Calm	N								

**Q1 - JANUARY 2014 SUMMARY TABLES
& GROUNDWATER FLOW MAP**

Table A-1. Water Level Elevations, First Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, January 16, 2014

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	100 *	266.90
MW-6	332.0	332.7	260	245	75.54	257.16
MW-7	344.3	346.0	259	244	93.08	252.92
MW-12I	245.6	248.1	217	207	10.61	237.49
MW-13D	258.1	260.4	205	195	15.45	244.95
MW-14	338.6	341.1	262	247	89.82	251.28

PVC: PVC wellhead casing measuring point elevation.

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

* Depth to water in MW-5 is estimated due to an obstruction within the well casing that could not be cleared by the water level transducer.

Table A-2. Groundwater Quality Data, First Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, January 16, 2014

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)**		6.86	0.16	--	1.28	0.08	0.10	0.12	--
pH (units)		7.24	7.02	--	6.78	7.08	7.40	6.92	--
Specific Conductivity (uS)		118	293	--	266	153	189	246	--
Temperature (degrees C)		11.9	14.4	--	10.7	10.0	10.4	12.9	--
Redox (Mv)		64.6	12.2	--	95.0	2.5	-32.5	-50.0	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		57	130	130	160	79	88	120	--
Ammonia (As N)		0.030	0.030	0.030	0.030	0.030	0.030	0.030	U
Bicarbonate		57	130	130	160	79	88	120	--
Carbonate		5.0	5.0	5.0	5.0	5.0	5.0	5.0	U
Chloride		2.9	1.5	1.5	1.5	3.2	6.9	11	--
Nitrate (As N)		0.63	2.4	2.5	0.56	0.5	0.5	0.5	U
Nitrite (As N)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	U
Sulfate		8.9	23	23	5.0	6.4	20	18	--
Total Organic Carbon (TOC)		1.0	1.0	1.0	1.3	2.5	1.0	1.1	--
Orthophosphate (As P)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	U
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00163	0.0026	0.0025	0.00093	0.00201	0.00308	0.0151	--
Manganese	2.24	0.001	0.540	0.510	0.001	0.047	0.033	2.5	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.									
1,1-Dichloroethane		1.0	1.1	1.1	1.0	1.0	1.0	1.0	U
1,2-Dichloroethene, total		2.0	2.0	2.0	2.0	2.0	2.0	4.0	2.0
cis-1,1-Dichloroethene		1.0	1.0	1.0	1.0	1.0	1.0	4.0	1.0
Ethyl ether		1.0	4.0	4.1	1.0	1.0	1.0	1.0	U
Vinyl chloride*	0.025	0.020	0.51	0.54	0.020	0.22	0.020	0.16	0.020

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

-- Not Tested.

Shaded results exceed site cleanup levels.

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

U Compound not detected at reporting limit.

* Vinyl chloride was analyzed using EPA method 8260 SIM.

Table A-3. Surface Water Quality Data, First Quarter 2014 Monitoring Event
Hansville Landfill, Kitsap County, Washington, January 16, 2014

Parameter	Site Cleanup Level (SCL) ¹	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		4.04	4.18	4.83	5.34	--
pH (units)		6.74	6.32	7.05	6.38	--
Specific Conductivity (uS)		191	342	132	134	--
Temperature (degrees C)		8.8	8.0	7.1	7.5	--
Redox (Mv)		112	126	122	134	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		85	150	43	49	--
Ammonia (As N)		0.030	U	0.030	U	--
Bicarbonate		85	150	43	49	--
Carbonate		5.0	U	5.0	U	--
Chloride		4.7	17	4.5	4.3	--
Nitrate (As N)		2.1	1.5	2.5	1.9	--
Nitrite (As N)		0.5	U	0.5	U	--
Sulfate		12	24	7.4	8.3	--
Total Organic Carbon (TOC)		2.6	10	24	9.3	--
Orthophosphate (As P)		0.5	U	0.5	U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00131	0.0015	0.00136	0.0009	--
Manganese	2.24	0.0012	0.037	0.025	0.0051	--
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

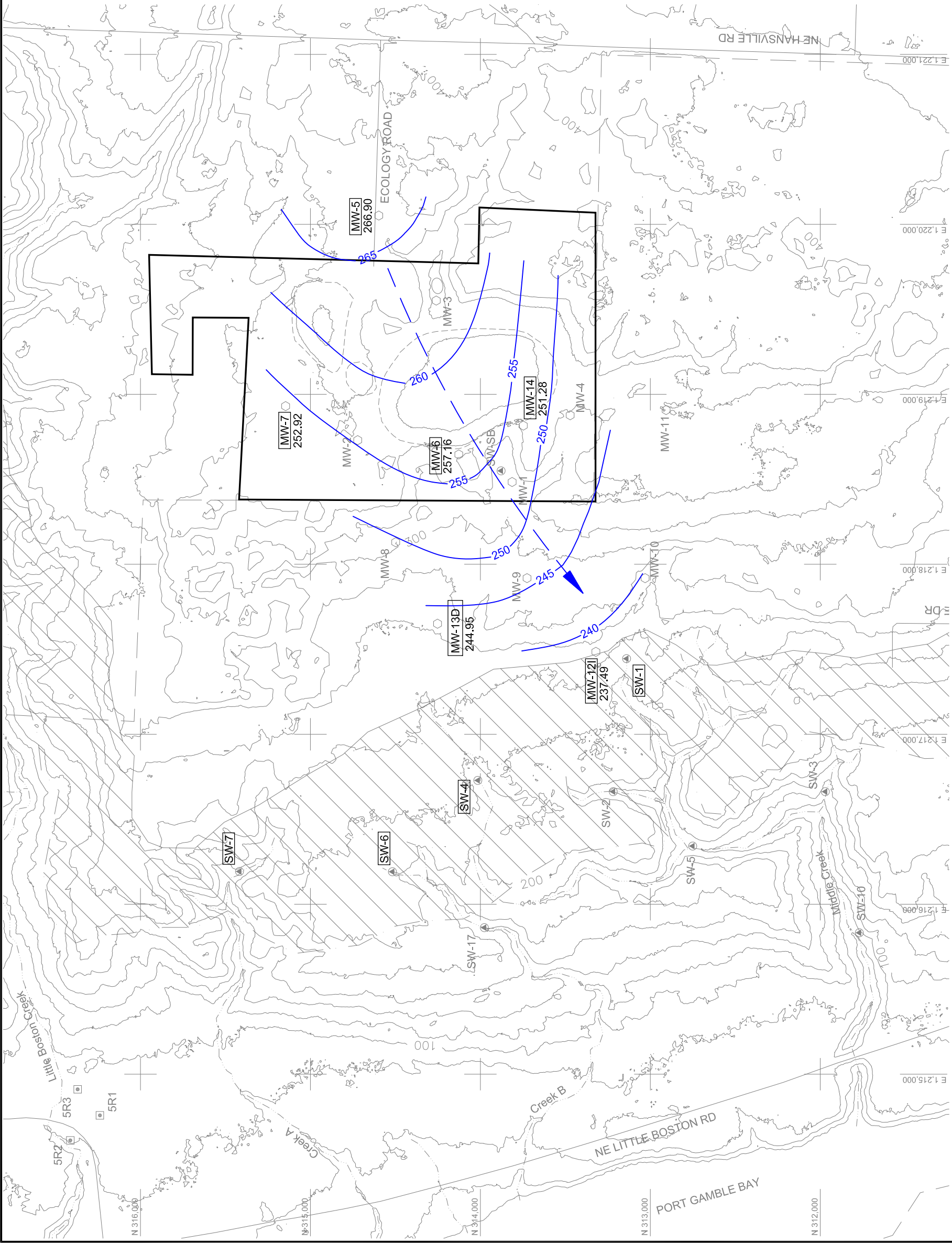
¹ SCLs defined in August 2011 consent decree/cleanup action plan.

-- Not Tested.

Shaded results exceed site cleanup levels.

U Compound not detected at reporting limit.

* Vinyl chloride was analyzed using EPA method 8260 SIM.



SCS ENGINEERS Environmental Consultants and Contractors 2405 140th Avenue NE, Suite 107 Bellevue, Washington 98005 (425) 746-4600 FAX: (425) 746-6747				PROJECT NO.	042110017.03	DES BY	L.L.	UPPER AQUIFER GROUNDWATER CONTOURS JANUARY 16, 2014 HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE	MAR 2014
				SCALE	AS SHOWN	CHK BY	D.V.		FIGURE	A-1
				CAD FILE	FIGURE A-1	APP BY	G.H.			

**Table C-1. Landfill Gas Data, First Quarter 2014 Monitoring
Perimeter Probes, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Rel Press (H2O inch)	Comments
Probe 1	3/5/2014 8:57	0	1.8	18.6	79.6			0.05	
Probe 2 Deep	3/5/2014 9:08	0	0.4	20.3	79.3			0.94	
Probe 2 Middle	3/5/2014 9:05	0	0.8	19.3	79.9			0.59	
Probe 2 Shallow	3/5/2014 9:03	0	1	19	80			0.08	
Probe 3	3/5/2014 9:13	0	1.1	19.8	79.1			-0.13	
Probe 4	3/5/2014 9:18	0	1.7	19.4	78.9			-0.17	
Probe 5	3/5/2014 8:44	0	1.4	19.2	79.4			-8.49	
Probe 6	3/5/2014 7:24	0	5.6	13.7	80.7			-0.09	
Probe 7	3/5/2014 9:19	0	1.7	19.3	79			-0.17	
Field Technician and Weather Conditions									
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction			
bb	03/05/14	51	29.34	Partly Cloudy	Calm	E			

% by vol Percent by volume.

H2O inch Pressure in inches of water.

in Hg Pressure in inches of mercury.

deg F Temperature in degrees Fahrenheit.

**Table C-1 (continued). Landfill Gas Data, First Quarter 2014 Monitoring
Extraction Well Field, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Extraction Well 001	3/5/2014 7:41	8.7	10	0	81.3	0.4	0.4	48	48	3	2			Closed valve 1/2 turn or less
Extraction Well 002	3/5/2014 7:48	0.9	19.4	0	79.7	0.1	0.1	48	48	1	1			No Change
Extraction Well 003	3/5/2014 7:51	4.2	14.7	0	81.1	-1.6	-0.9	48	48	4	1			Closed valve > 1 turn
Extraction Well 004	3/5/2014 7:56	0.9	7.6	2.9	88.6	0.1	0.2	49	49	1	1			No Change
Extraction Well 005	3/5/2014 8:01	0.8	11.2	0.9	87.1	0.1	0.1	49	49	2	1			Closed valve 1/2 turn or less
Extraction Well 006	3/5/2014 8:03	7.6	17.3	0	75.1	0.2	0.2	49	49	1	1			No Change
Extraction Well 007	3/5/2014 8:09	3.1	13.1	0	83.8	0.7	0.5	49	49	3	1			Closed valve 1/2 to 1 turn
Extraction Well 008	3/5/2014 7:30	10.2	11.9	0	77.9	0.7	0.7	48	48	1	1			No Change
Extraction Well 009	3/5/2014 7:33	3.9	13.5	0	82.6	0.3	0.4	47	47	4	1			Closed valve 1/2 to 1 turn
Extraction Well 010	3/5/2014 7:37	4.5	10.3	0	85.2	0.8	0.8	47	47	2	1			Closed valve 1/2 turn or less
Extraction Well 011	3/5/2014 7:46	1.3	15.1	0	83.6	0.5	0.3	48	48	3	1			Closed valve 1/2 to 1 turn
Extraction Well 012	3/5/2014 8:15	21.1	5.1	0	73.8	0.3	0.3	50	50	2	2			No Change; Valve needs replacement
Extraction Well 013	3/5/2014 8:11	5.6	15.8	0	78.6	0.1	0.1	49	49	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:27	0	1	18.3	80.7	-0.9	-0.9	54	53	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:26	0	0.9	20.2	78.9	-0.9	-0.9	57	56	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:31	0	1.3	18.8	79.9	-0.8	-0.5	51	51	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:29	0	1.8	17.3	80.9	-0.6	-0.5	52	52	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:34	0	0.7	19.5	79.8	-0.2	-0.2	51	51	1	1			No Change; Valve 100% Closed
Native Soil Extraction Wel	3/5/2014 8:33	0	0.9	19.8	79.3	-0.1	-0.1	51	51	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:38	0	0.6	19.6	79.8	-1.4	-1.4	51	51	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:37	0	0.3	20.8	78.9	-1.4	-1.4	51	51	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:41	0	0.5	19.3	80.2	-0.1	-0.1	51	51	1	1			No Change
Native Soil Extraction Wel	3/5/2014 8:40	0	0.3	20.4	79.3	-1.6	-1.6	51	51	1	1			No Change
Trench Well TD-1	3/5/2014 7:22	1.6	13	0.1	85.3	0	-0.1	50	50	1	1			No Change
Trench Well TR-1	3/5/2014 8:05	2.8	13	0	84.2	0.2	0.2	49	49	1	1			No Change
Trench Well TR-2	3/5/2014 7:35	5.6	10.7	0	83.7	0.7	0.7	47	47	1	1			No Change
Trench Well TR-3	3/5/2014 7:43	6.9	11.6	0	81.5	-0.2	-0.2	48	48	4	1			Closed valve 1/2 to 1 turn
Trench Well TR-4	3/5/2014 7:58	3.5	12.5	0	84	0.1	0.1	49	49	1	1			No Change
Trench Well TR-5	3/5/2014 8:13	9.7	11.5	0.4	78.4	0.2	0.2	49	49	1	1			No Change
Trench Well TR-6	3/5/2014 8:16	16.2	9.9	0	73.9	0.1	0.1	50	50	1	1			No Change
Trench Well TR-7	3/5/2014 7:54	18.6	9.5	0	71.9	0.2	0.2	49	49	4	4			No Change; Valve needs replacement
Well with minimum temperature during reporting period														
Extraction Well 009	3/5/2014 7:33	Init = 47 Adj = 47												
Extraction Well 010	3/5/2014 7:37	Init = 47 Adj = 47												
Trench Well TR-2	3/5/2014 7:35	Init = 47 Adj = 47												
Well with maximum temperature during reporting period														
Native Soil Extraction Wel	3/5/2014 8:26	Init = 57 Adj = 56												
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
bb	03/05/14	51	29.32	Partly Cloudy	Calm	E								

**Table C-1 (continued): Landfill Gas Data, First Quarter 2014 Monitoring
Sample Ports, Hansville Landfill, Kitsap County, Washington**

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Blower Inlet	3/5/2014 8:48	2.5	6.7	9.9	80.9	-1.9	-1.9	55	55	39	39			No Change
Blower Outlet	3/5/2014 8:49	2.5	6.6	10	80.9	0.5	0.6	54	54	39	39			No Change
Field Technician and Weather Conditions														
Technician	Date	Ambient Temp (deg F)	Baro Press (in -Hg)	General Weather	Wind Speed	Wind Direction								
bb	03/05/14	51	29.32	Partly Cloudy	Calm	E								

% by vol Percent by volume.
H2O inch Pressure in inches of water.
deg F Temperature in degrees fahrenheit.
scfm Standard cubic feet per minute.

Appendix D

**2014 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	0.00175	0.00158	0.00191	0.005	—		—	—	—	—
MW-06	0.00216	0.00178	0.00254	0.005	—		—	—	—	—
MW-07	0.00096	0.00087	0.00104	0.005	—		—	—	—	—
MW-12I	0.00214	0.00198	0.00229	0.005	—		—	—	—	—
MW-13D	0.00327	0.00296	0.00358	0.005	—		—	—	—	—
MW-14	0.01783	0.01250	0.02316	0.005	-14	-0.585	27.92	N	0.00000366	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	0.318	0.146	0.489	0.025	25	1.081	14	N	0.00009	N
MW-07	—	—	—	0.025	—			—	—	—
MW-12I	0.205	0.109	0.301	0.025	6	0.225	41.09	N	-0.000052	↓
MW-13D	—	—	—	0.025	—			—	—	—
MW-14	0.168	0.132	0.203	0.025	-81	-3.605	0.02	↓	-0.0001	N

Footnotes:

N = 4 (Mean, LCL, UCL); 16 (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=16), 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

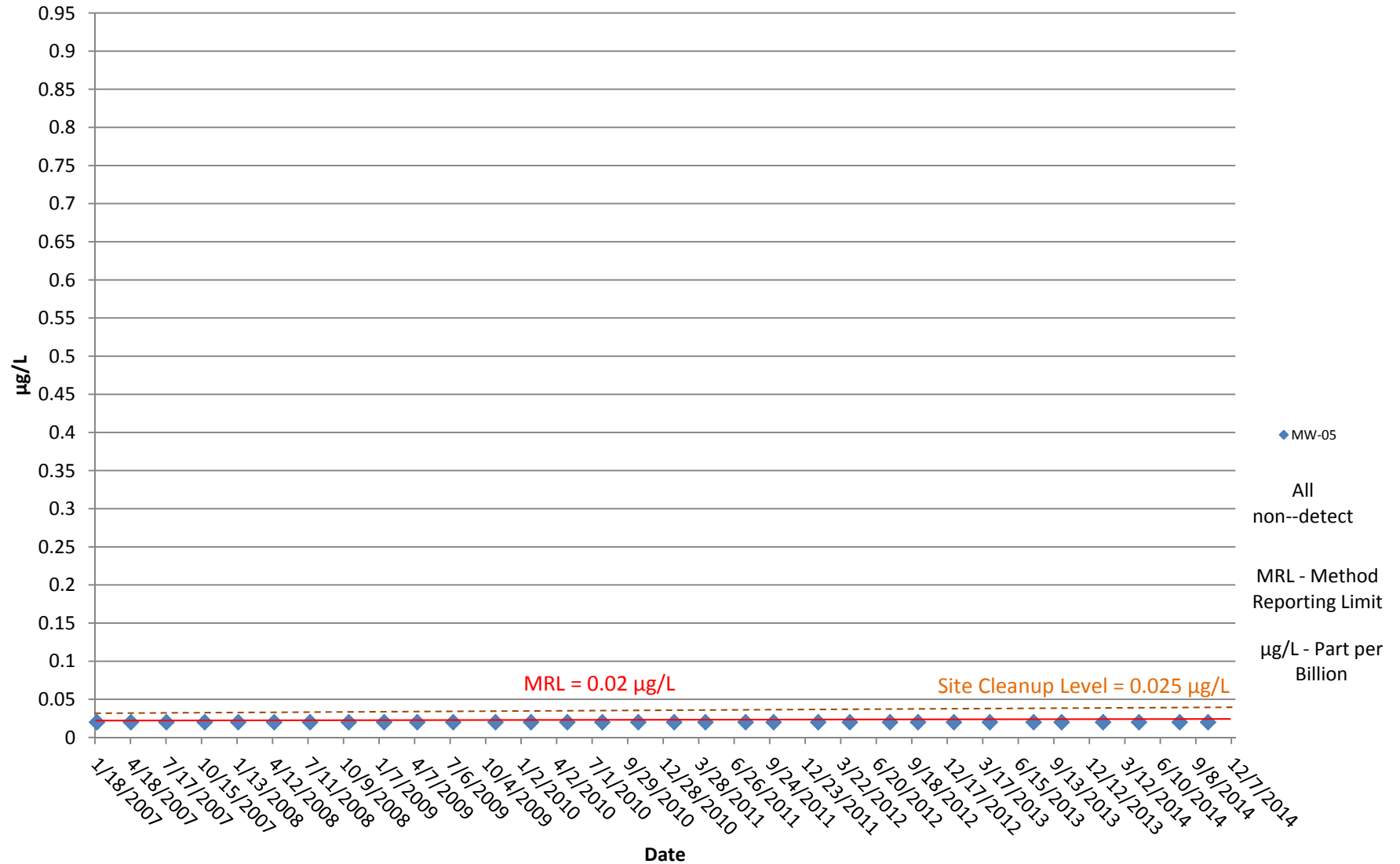
Table D-2. Statistical Data Set (N=16), Hansville Landfill

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

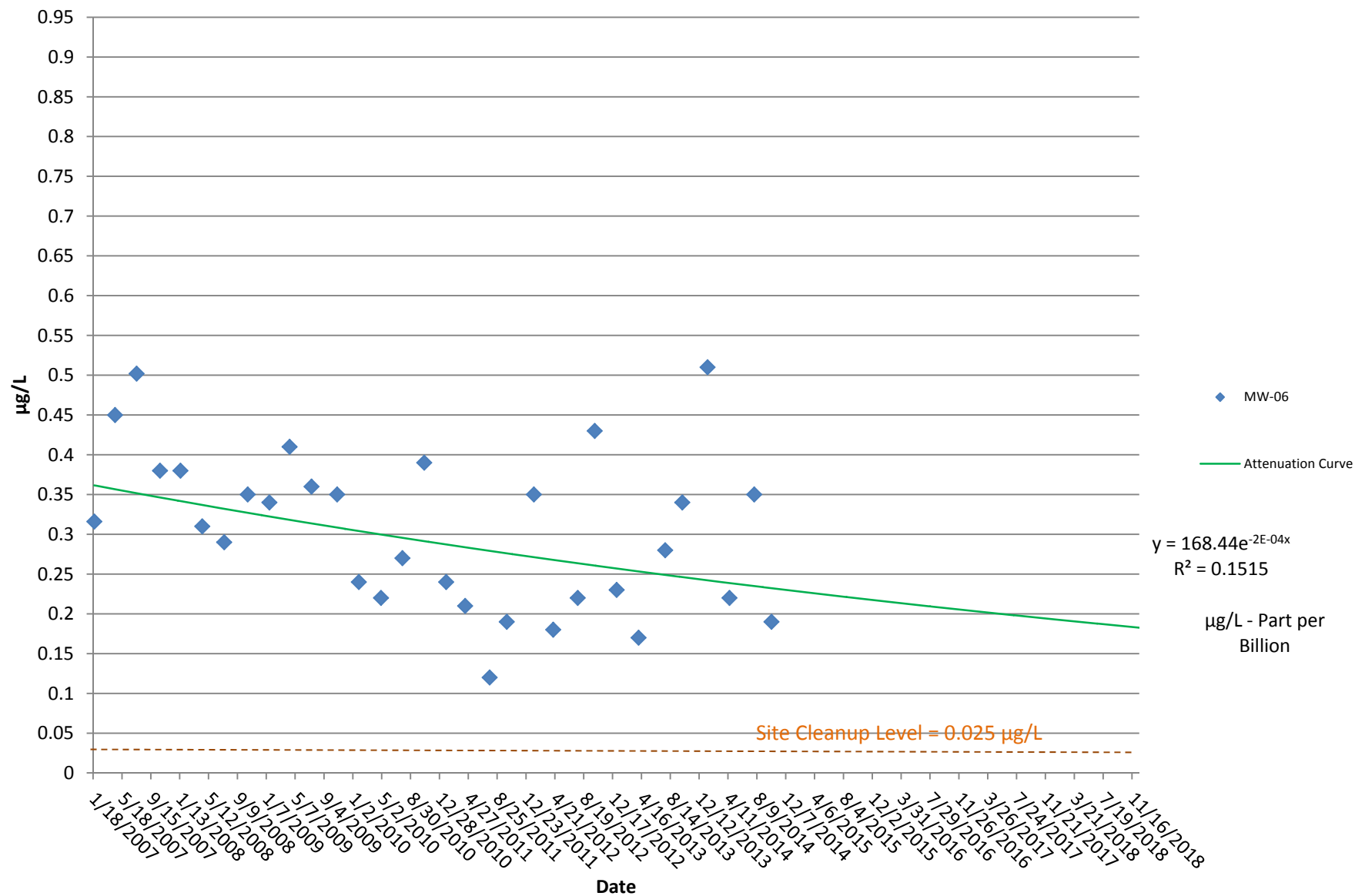
Table D-2. Statistical Data Set (N=16), Hansville Landfill

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

Vinyl Chloride , MW-05 Hansville Landfill

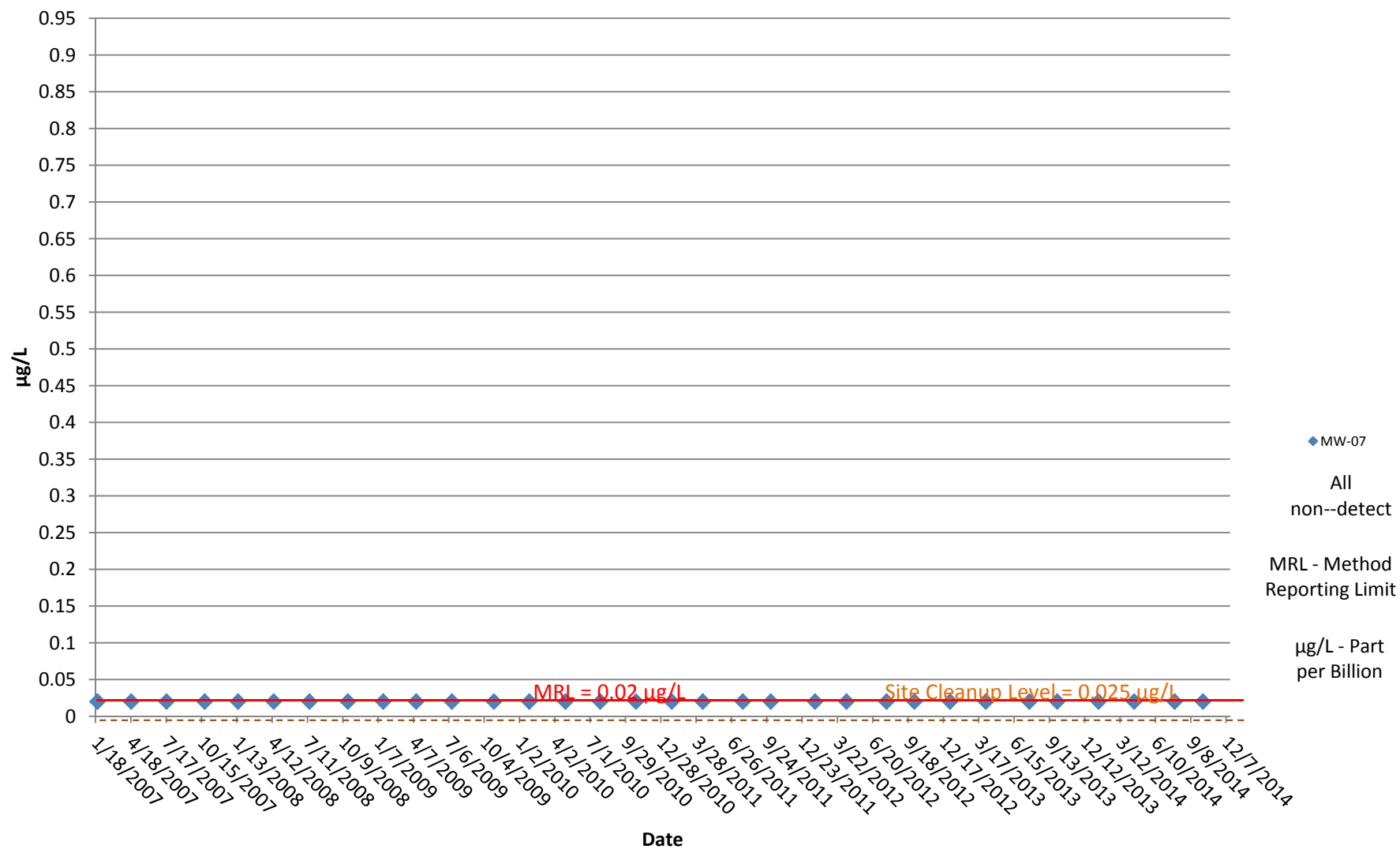


Vinyl Chloride, MW-06 Hansville Landfill

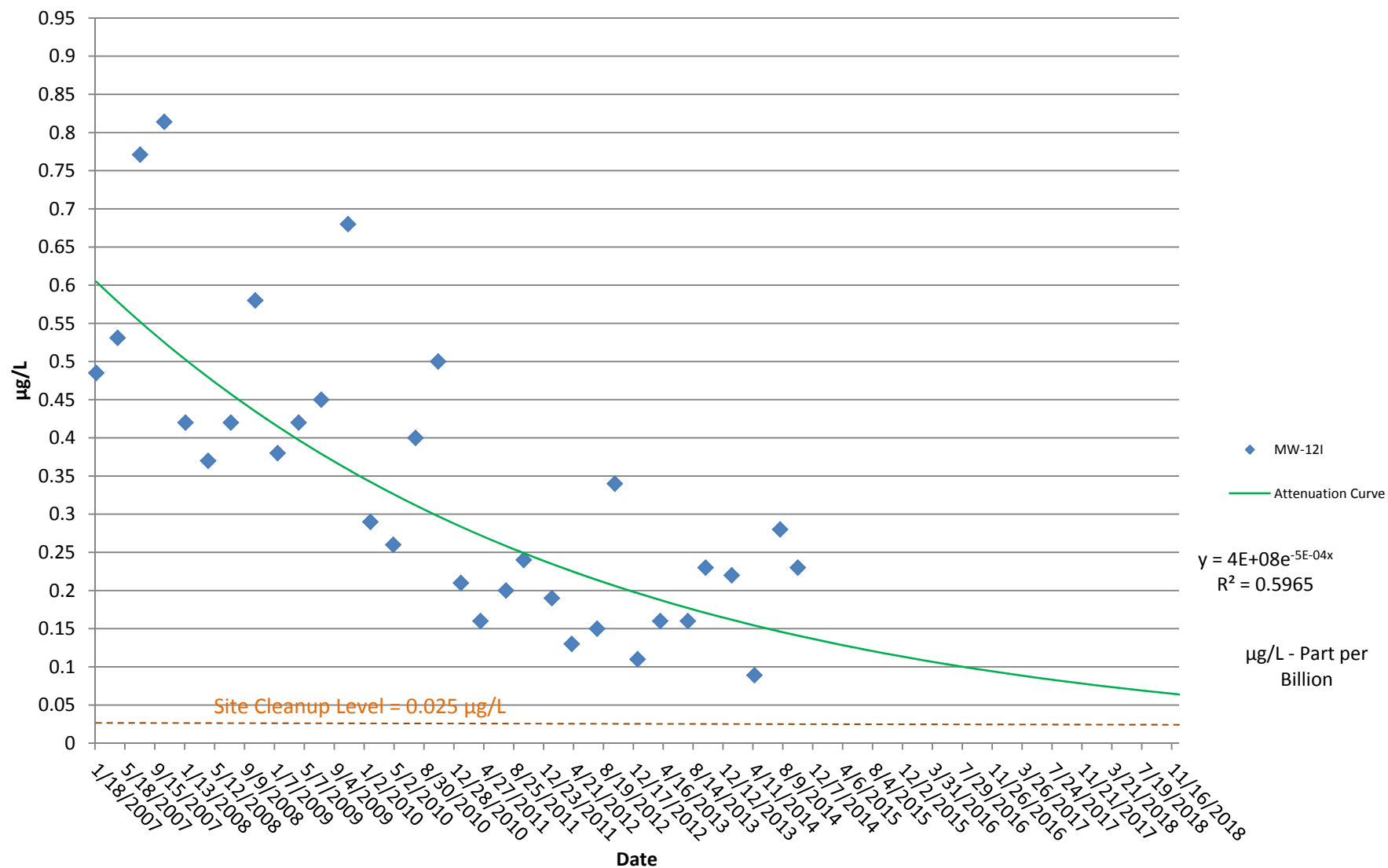


Vinyl Chloride , MW-07

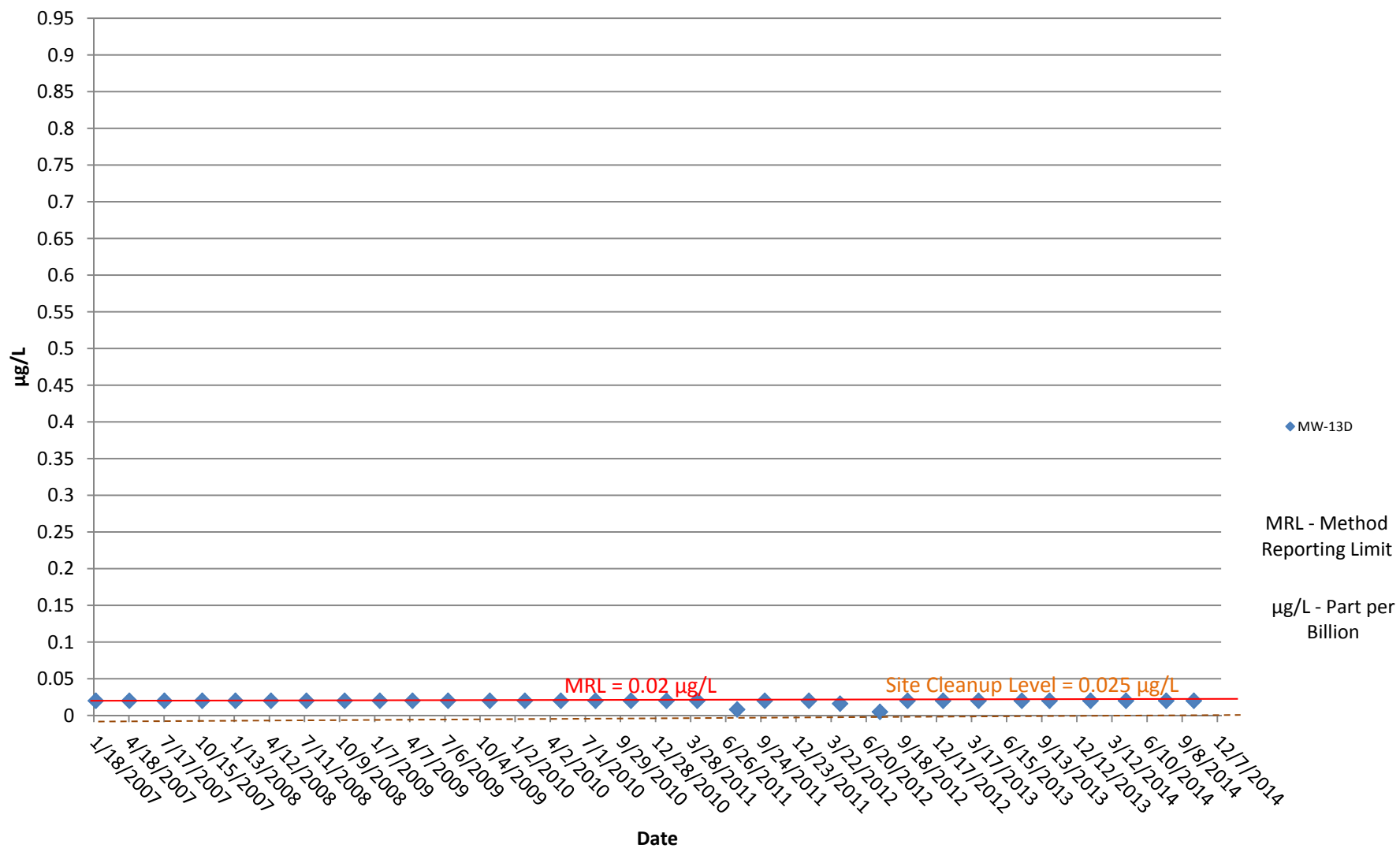
Hansville Landfill



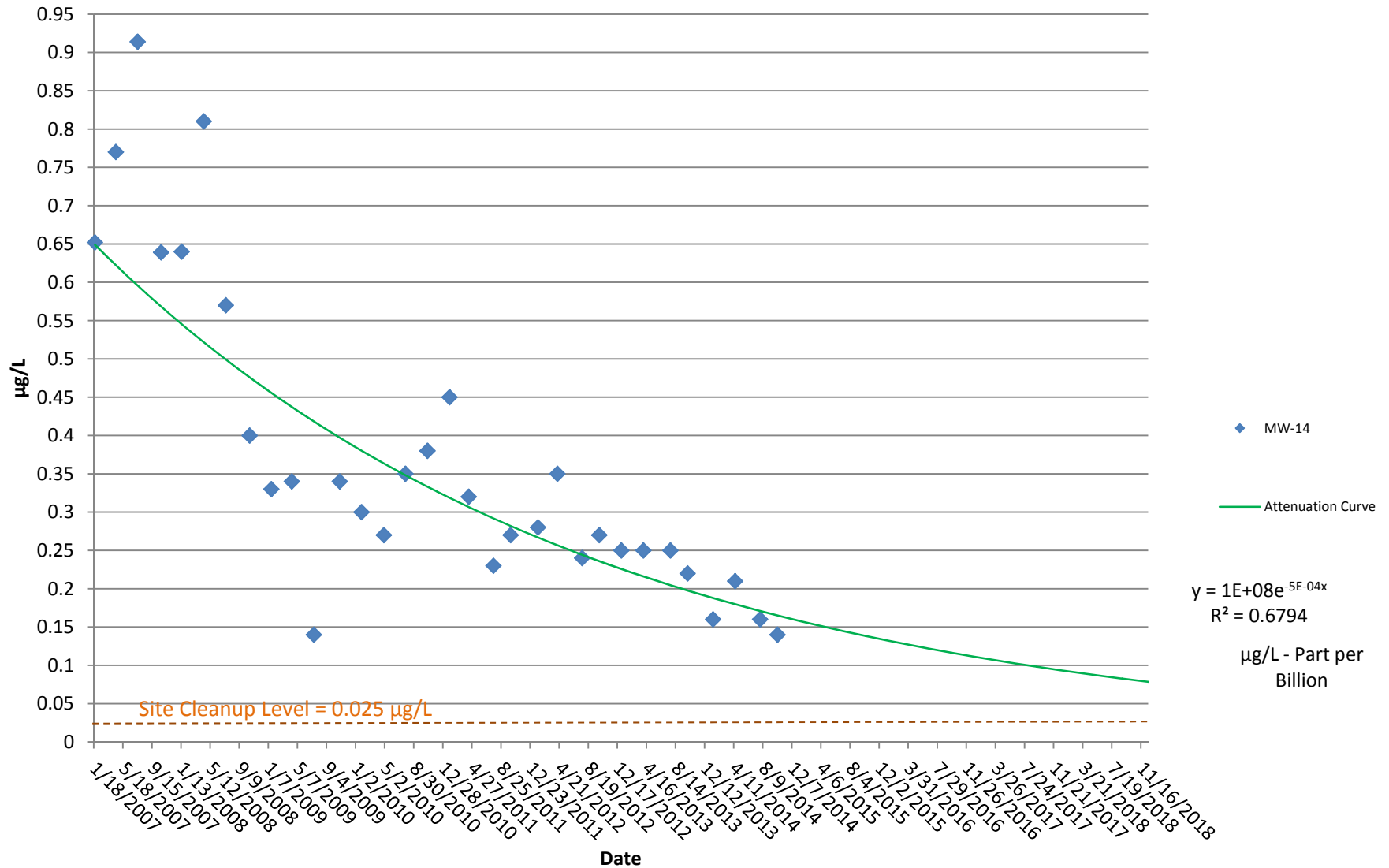
Vinyl Chloride, MW-12I Hansville Landfill



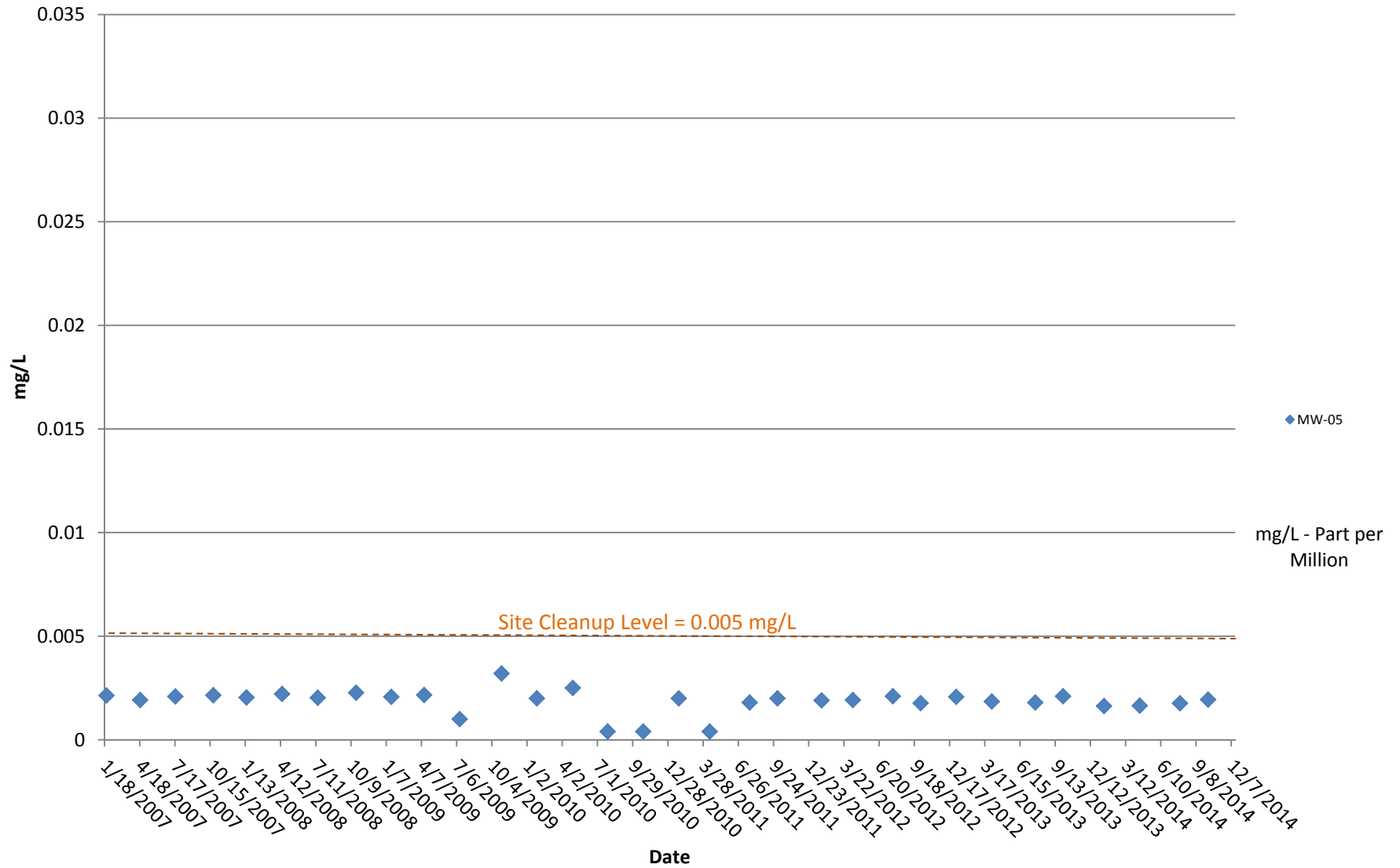
Vinyl Chloride, MW-13D Hansville Landfill



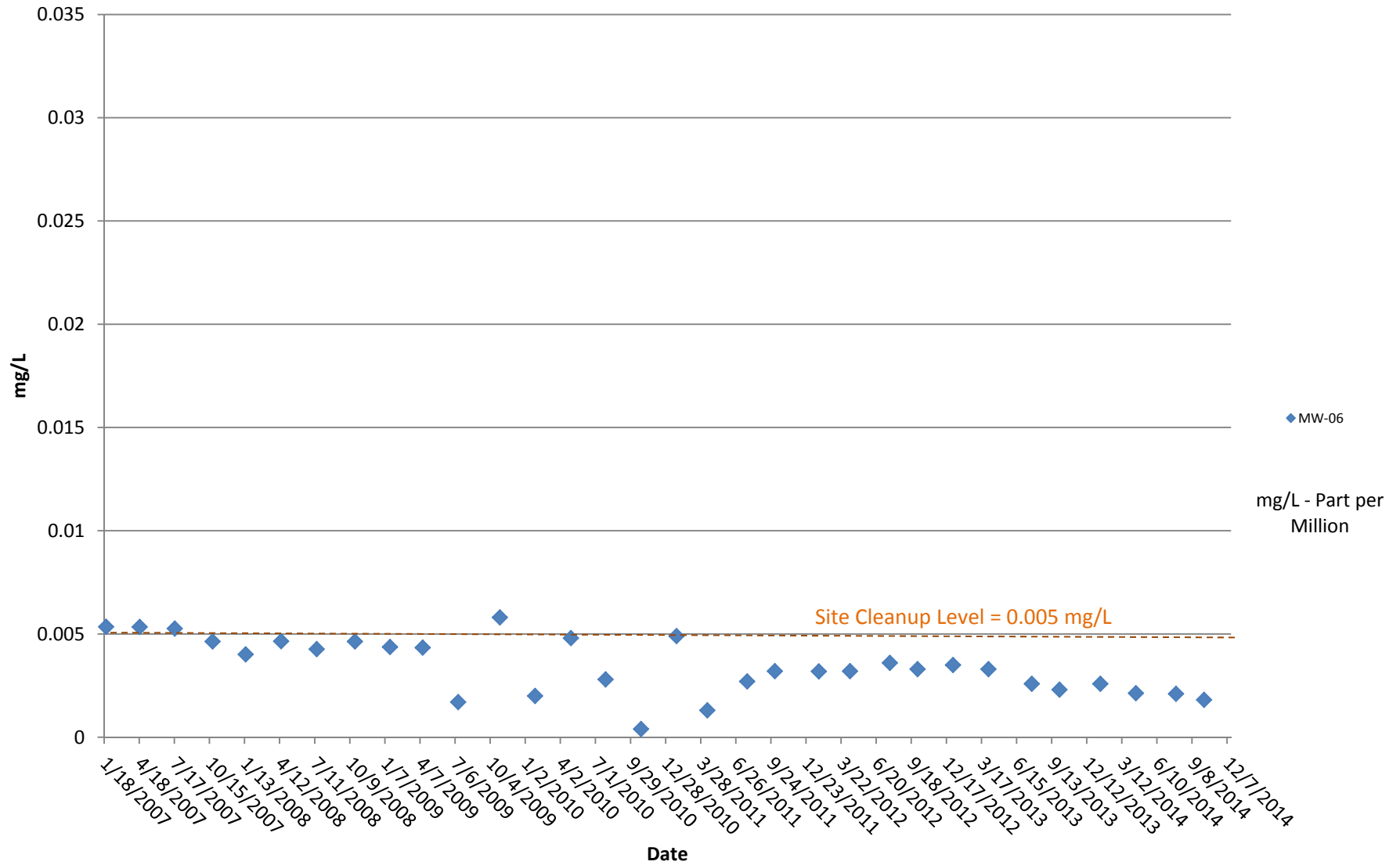
Vinyl Chloride, MW-14 Hansville Landfill



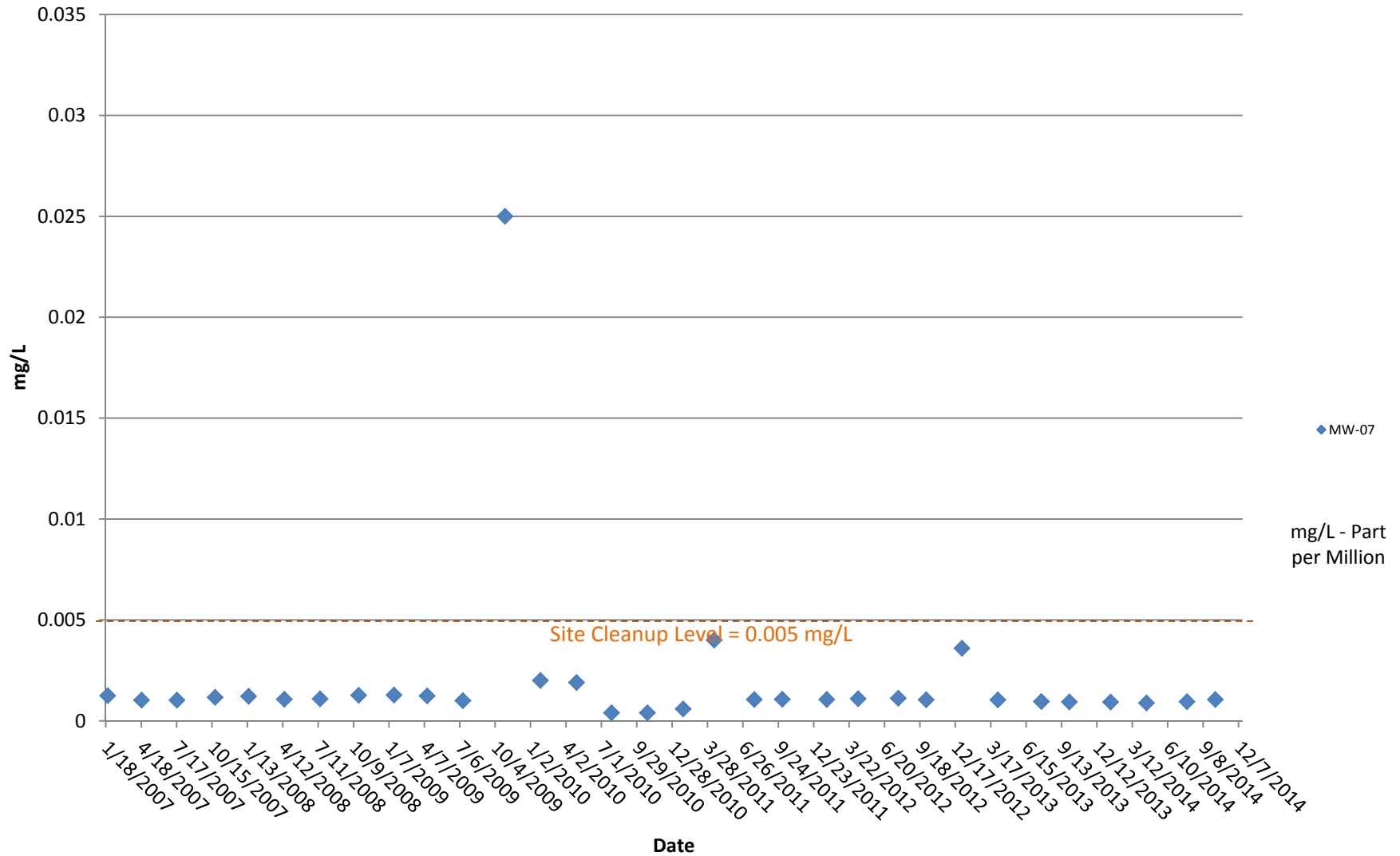
Arsenic, MW-05 Hansville Landfill



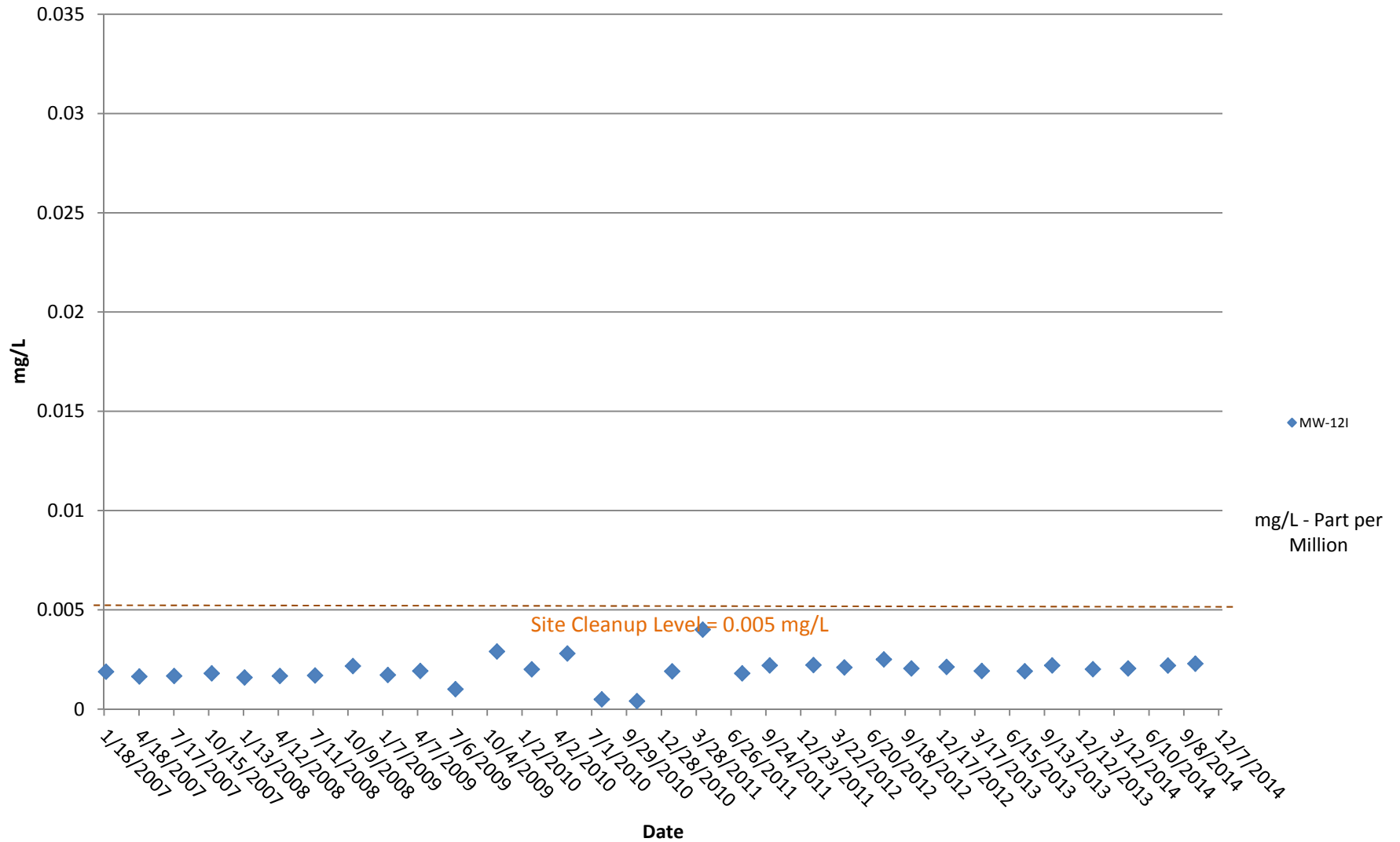
Arsenic, MW-06 Hansville Landfill



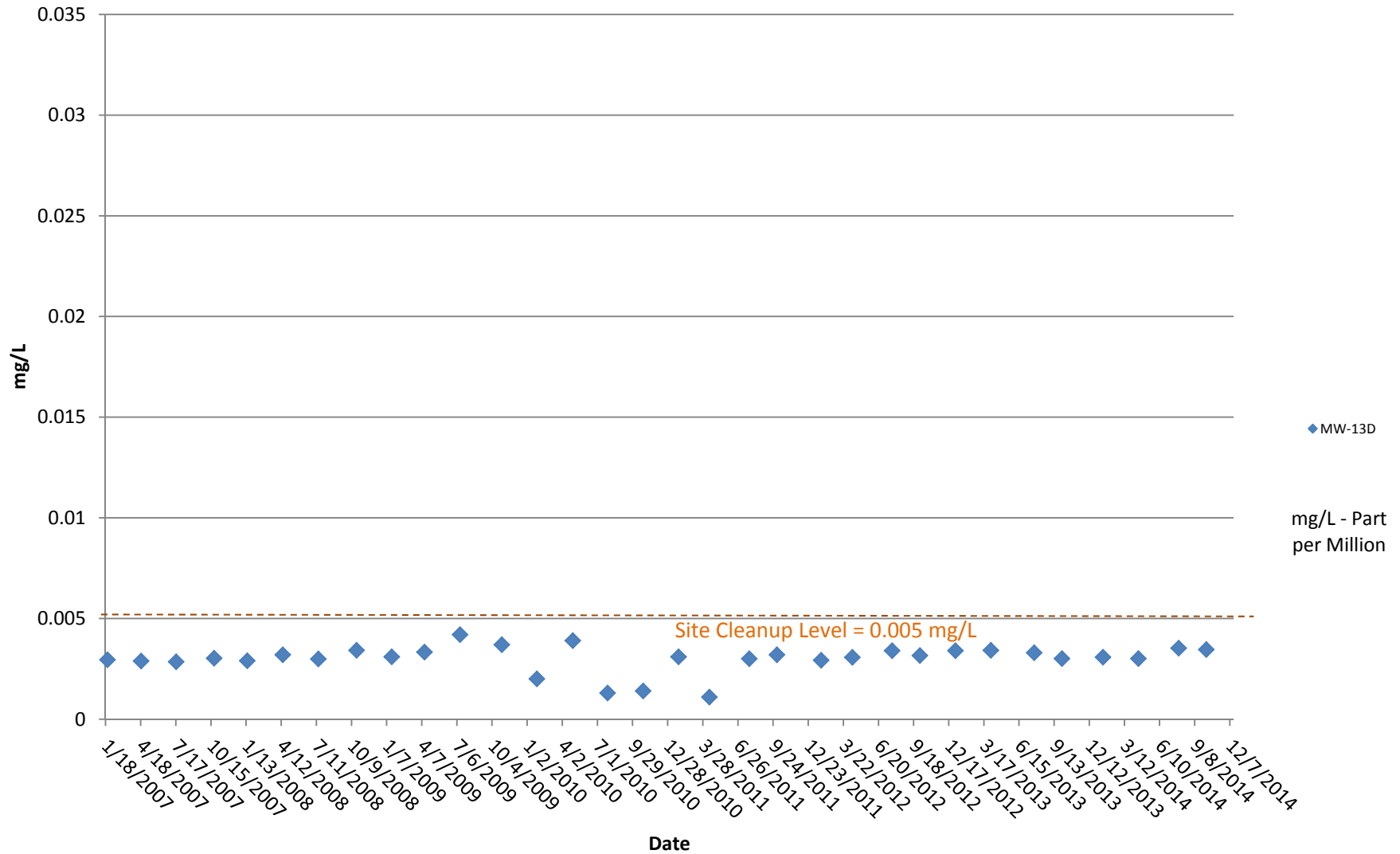
Arsenic, MW-07 Hansville Landfill



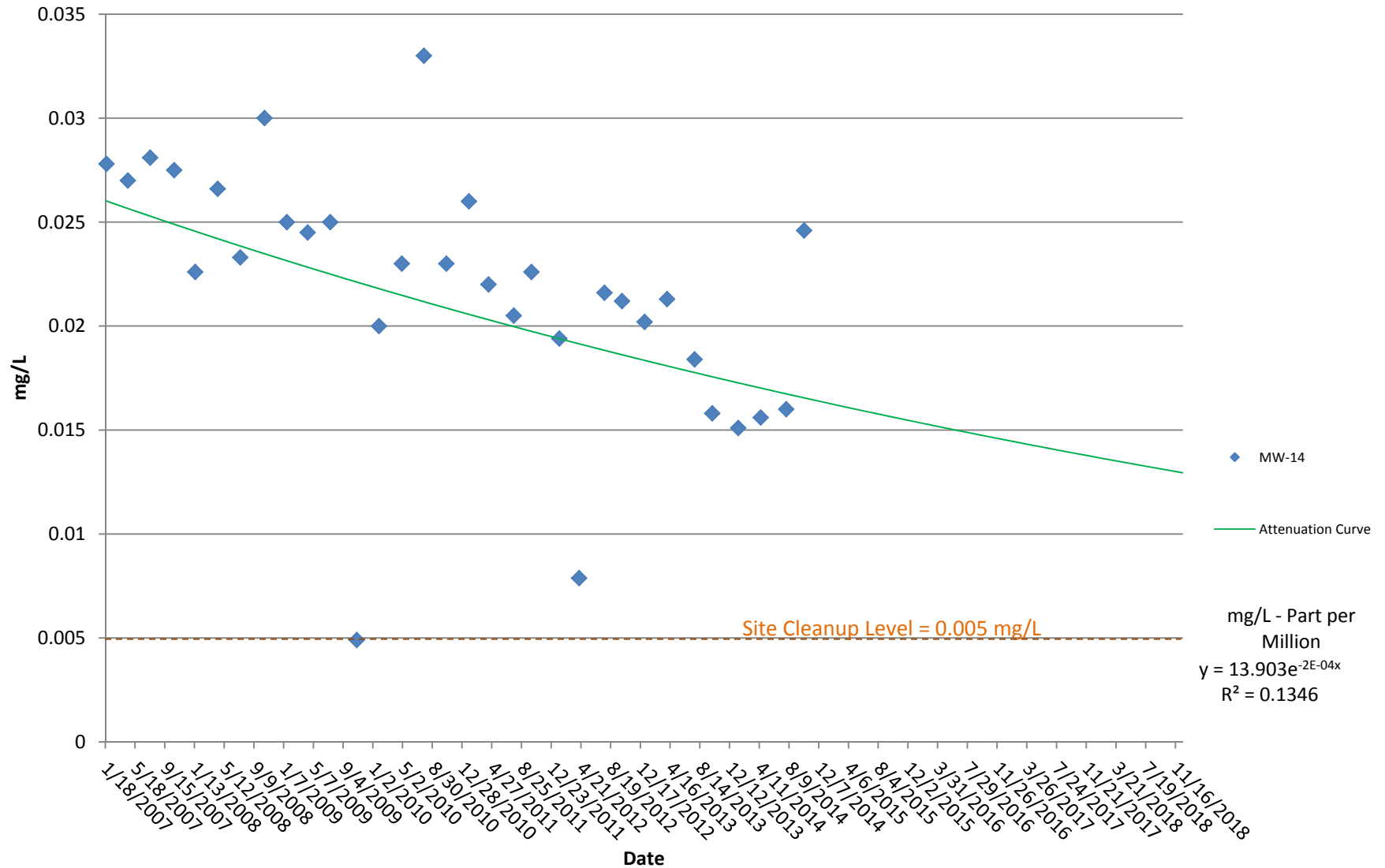
Arsenic, MW-12I Hansville Landfill



Arsenic, MW-13D Hansville Landfill



Arsenic, MW-14 Hansville Landfill



Appendix E

Fourth Quarter (October) 2014 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 #:	04211017.03	Sampling Method:		Dedicated	1.75" QED SamplePro	Bail	Peristaltic / Grab	Other
Site	Hansville	Meter:		1L = 0.24 gallons				
Well ID:	SW-7	MP-20						
Sample ID:	SW-7	YSI						
Date:	10/8/14							
Weather:	Rain							
Filtered?	Y N							
Sample Containers:								
Locked?	Y N							
Water in Protector?	Y N							
1000 ml Poly								
500 ml HNO3	x2							
125 ml NaOH								
250 ml Poly								
40 ml VOA	x3							
1000 ml Amber								
Damage?	Y N							
125 ml Poly								
500 ml H2SO4	x2							
1000 ml Amber								
Refill								
Discharge								
Pressure								
Flow								
Total Depth								
One Well Volume (liters)								
Total Volume Bailed (liters)								
Other:								
Flow Setting:								

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

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0900	-	12.99	209	7.48	6.77	348	123.7	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Mark Oliver

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #:	04211017.03	Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Site	Hansville	1 ft water = 0.62L					
Well ID:	SW-6	One Well Volume (liters)					
Sample ID:	SW-6	Total Volume Bailed (liters)					
Date:	10/8/14	Refill					
Weather:	Overcast	Discharge					
Filtered?	Y N	Pressure					
Sample Containers:		Flow					
		Damage? Y N					
		1000 ml Poly					
		500 ml HNO3 x2					
		500 ml H2SO4 x2					
		125 ml NaOH					
		250 ml Poly					
		40 ml VOA x3					
		1000 ml Amber					

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0935	-	13.50	128	6.26	6.83	322	188.3	

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

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #:	04211017.03	Site	Hansville	Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Well ID:	SW-4	Sample ID:	SW-4	1L = 0.24 gallons					
Date:	10/8/14	Weather:	Overcast	1 ft water = 0.62L					
Filtered?	Y N	Locked?	Y N	One Well Volume (liters)					
Sample Containers:	1000 ml Poly	Water in Protector?	Y N	Total Volume Bailed (liters)					
	500 ml HNO3 x2	500 ml H2SO4 x2		Refill					
	125 ml NaOH			Discharge					
				Pressure					
				Flow					
				Total Depth					
				DTW					
				TOS					
				Intake					
				BOS					
				Damage? Y N					
				250 ml Poly					
				40 ml VOA x3 x6					
				1000 ml Amber					

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1015	—	12.74	438	7.14	7.65	329	47.18	

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

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

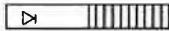
Project #:	04211017.03	Site:	Hansville	Dedicated:		1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Well ID:	SW-1	DTW	/	1 ft water = 0.62L						
Sample ID:	SW-1	TOS	/	One Well Volume (liters)						
Date:	10/8/14	Intake	/	Total Volume Bailed (liters)						
Weather:	Overcast	BOS	/	Other:						
Filtered?	Y N	Total Depth	/	Flow						
Sample Containers:		Water in Protector?	Y N	Setting:						
		1000 ml Poly		Refill						
		500 ml HNO3	x2	Discharge						
		500 ml H2SO4	x2	Pressure						
		125 ml NaOH		Flow						
		250 ml Poly		Damage?						
		40 ml VOA	x3	125 ml Poly						
		1000 ml Amber		1000 ml Amber						

CONTROL SETTINGS:

Meter:

MP-20

YSI



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

TIME	DTW	Temp.	Sp Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1100	-	12.06	290	7.90	7.57	346	210.3	-

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Mark O'Hara

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.03 Site: Hansville

Well ID: MW-12I

Sample ID: MW-12I

Date: 10/8/14

Weather: Overcast

Filtered? ☒ Y ☐ N Locked? ☒ Y ☐ N

Sample Containers: 1000 ml Poly 500 ml HNO3 x2 125 ml NaOH

Sampling Method: ☒ Dedicated ☐ 1.75" QED SamplePro ☐ Bail

Meter: MP-20

DTW: 11.68

TOS: 7

Intake: 7

BOS: 7

Total Depth: 7

Water in Protector? ☒ Y ☐ N

500 ml Poly 500 ml H2SO4 x2 125 ml Poly

Damage? ☒ Y ☐ N

250 ml Poly 40 ml VOA x3 x6 1000 ml Amber

CONTROL SETTINGS:

Refill _____

Discharge _____

Pressure _____

Flow _____

One Well Volume (liters) _____

Total Volume Bailed (liters) _____

Other: _____

Flow Setting: _____

1L = 0.24 gallons

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

* Grudfos

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1125	Begin							
1130	11.75	10.52	200	0.34	7.12	43	1.74	400
1133	11.75	10.55	211	0.24	7.11	42	0.96	
1136	11.75	10.55	212	0.25	7.12	42	0.64	
1139	11.75	10.56	211	0.25	7.11	41	1.97	
1142	11.75	10.57	210	0.23	7.12	40	1.44	
1145	11.75	10.58	208	0.24	7.13	42	1.09	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER: Malt Gilmore

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.03 Site: Hansville

Well ID: MW-13D

Sample ID: MW-13D

Date: 10/8/14

Weather: Overcast

Filtered? ☒ Y ☐ N Locked? ☒ Y ☐ N

Sample Containers: 1000 ml Poly 500 ml HNO3 x2 125 ml NaOH

Sampling Method: DTW 13.18

Meter: MP-20

CONTROL SETTINGS: Refill Discharge Pressure Flow

1.75" QED SamplePro Bail 1 ft water = 0.62L One Well Volume (liters) Total Volume Bailed (liters)

Peristaltic Grab Other

Flow Setting: 77kts

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

Grudfos

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1220	13.25	10.10	215	0.50	7.49	308	2.75	400
1225	13.31	10.13	215	0.38	7.51	292	1.95	
1230	13.30	10.14	216	0.36	7.51	285	0.97	
1235	13.25	10.16	215	0.33	7.51	282	0.99	
1240	13.25	10.14	216	0.33	7.52	280	1.05	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

MAT O'Hare

Printed Name

Signature

[Signature]

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.03
 Site: Hansville
 Well ID: SNW-7
 Sample ID: SNW-7
 Date: 10/9/14
 Weather: Overcast
 Filtered? ☒ Y ☐ N
 Sample Containers: 1000 ml Poly ☒ N
 500 ml HNO3 x2
 125 ml NaOH
 Water in Protector? ☒ Y ☐ N
 500 ml Poly
 500 ml H2SO4 x2
 125 ml Amber
 DTW: 87.32
 TOS: /
 Intake: /
 BOS: /
 Total Depth: /
 Sampling Method: 1.75" QED SamplePro
 Meter: MP-20
 YSI
 Dedicated: /
 Bail: /
 1 ft water = 0.62L
 One Well Volume (liters): /
 Total Volume Bailed (liters): /
 Peristaltic: /
 Grab: /
 Other: /
 Flow Setting: 203

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

Grudfos

Temp rise due to Grudfos

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0835	Began purge							
0840	87.35	10.18	279	4.65	6.49	SS	1.47	450
0843	87.40	10.75	279	1.84	6.58	SS	1.32	
0846	87.40	10.83	279	1.77	6.79	SS	1.02	
0849	87.40	12.15	280	1.77	6.84	SS	2.14	
0852	87.40	12.23	278	1.77	6.85	SS	0.96	
0855	87.40	12.43	280	1.75	6.84	SS	1.32	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #:	04211017.03	Site	Hansville	Sampling Method:	Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Well ID:	MW-6	DTW	77.20	Meter:	MP-20	1 ft water = 0.62L	One Well Volume (liters)	Other:		
Sample ID:	MW-6	TOS		Recharge				Flow		
Date:	10/9/14	Intake		Discharge				Setting:		
Weather:	Overcast - Heavy Fog	BOS		Pressure						
Filtered?	Y N	Total Depth		Flow						
Sample Containers:		Water in Protector?	Y N							
		1000 ml Poly		Damage?	Y N					
		500 ml HNO ₃	x2							
		125 ml NaOH								
		500 ml H ₂ SO ₄	x2							
		250 ml Poly								
		40 ml VOA	x3							
		125 ml Poly								
		1000 ml Amber								

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

Duplicate taken as 20D1D

Groundfos

Temp rise due to Groundfos

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0935	Began Pore							
0940	77.35	13.44	481	0.45	7.08	266	3.16	350
0943	77.50	14.71	478	0.45	7.09	266	2.70	
0946	77.45	15.34	477	0.47	7.08	266	2.00	
0949	77.45	15.97	480	0.44	7.08	266	1.51	
0952	77.45	16.33	479	0.42	7.08	266	1.96	
0955	77.45	16.30	481	0.43	7.08	266	2.03	

Stabilization Parameters: pH/DO ± 0.2 , SpC $\pm 10\%$, Temp $\pm 0.5^\circ\text{C}$, Turb. $\pm 10\%$ or ≤ 5

SAMPLER:

Printed Name

Signature

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #:	04211017.03	Site:	Hansville	Sampling Method:	☒ Dedicated	1.75" QED SamplePro	Bail	Peristaltic	Grab	Other
Well ID:	MW-14	DTW	84.90	Meter:	MP-20	1 ft water = 0.62L				
Sample ID:	MW-14	TOS		YSI		One Well Volume (liters)				
Date:	10/9/14	Intake				Total Volume Bailed (liters)				
Weather:	Overcast	BOS				Flow				
Filtered?	☒ N	Total Depth				Refill				
Sample Containers:		Water in Protector?	☒ N	Damage?	☒ N	Discharge				
		1000 ml Poly				Pressure				
		500 ml HNO3	x2			Flow				
		125 ml NaOH								
		500 ml H2SO4	x2							
		250 ml Poly								
		40 ml VOA	x3							
		125 ml Poly								
		1000 ml Amber								

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

Grudfuz
Temp rise due to grudfuz

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1025	Begun Pour							
1030	84.95	12.04	414	0.70	7.03	131	4.17	300
1033	84.95	12.36	394	0.70	7.03	136	3.96	
1036	84.95	12.49	388	0.69	7.02	139	3.74	
1039	84.95	12.60	386	0.70	7.02	140	2.91	
1042	84.95	12.67	383	0.70	7.02	137	1.90	
1045	84.95	12.83	382	0.69	7.01	138	2.33	

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

SAMPLER: Matt O'Hare

Signature

Printed Name

SCS ENGINEERS

2405 140th ave NE #107

Bellevue, WA 98005

(425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211017.03 Site: Hansville

Well ID: MW-5

Sample ID: MW-5

Date: 10/9/14

Weather: Overcast

Filtered? ☒ Y ☐ N Locked? ☒ Y ☐ N

Sample Containers: 1000 ml Poly 500 ml HNO₃ x2 125 ml NaOH

Sampling Method: Dedicated

Meter: MP-20

DTW: 102.78

TOS: /

Intake: /

BOS: /

Total Depth: /

Water in Protector? ☒ Y ☐ N

500 ml Poly 500 ml H₂SO₄ x2 125 ml Poly

Damage? ☒ Y ☐ N

125 ml Poly 1000 ml Amber

CONTROL SETTINGS:

1.75" QED SamplePro

1 ft water = 0.62L

One Well Volume (liters)

Discharge

Pressure

Flow

Peristaltic

Grab

Other

Flow Setting: 234

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

Grand Pos

Temp fix due to condensation

TIME	DTW	Temp.	Sp. Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1120	Begin purge							
1125	103.04	10.82	136	6.77	7.33	294	41.71	250
1128	103.21	10.77	135	6.89	7.34	293	101.7	↓
1131	103.20	10.79	136	6.90	7.31	292	95.5	
1134	103.20	10.80	136	6.90	7.31	293	94.6	
1137	103.20	10.80	135	6.89	7.32	293	97.3	
1140	103.20	10.83	136	6.89	7.32	293	100.7	

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

SAMPLER:

Matt O'Hare

Printed Name

Signature



GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	10/9/14				
Time	0800				
Weather (sky or precip, temp)	Overcast, Heavy Fog ~50°F				
Type of Calibration	Standard	Standard	Standard	Standard	
Standard Value	445	4.01	7.00	100% or ~8.5 1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	445	4.06	7.03		
Post Cal Reading	445	4.01	7.00	8.5 821, 103, 721.4, 0.32	
Discrepancy	none				
Calib. Successful?	yes				
Calibration by	MO				
Instrument Type, ID	MP20 / YSI 556		MicoTPW / HACH2000		
Calibration Location	Haverhill				

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

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	10/8/14				
Time	0800				
Weather (sky or precip, temp)	Overcast/Rain/Heavy Fog ~ 50°F				
Type of Calibration	Standard	Standard	Standard	Standard	
Standard Value	445	4.01	7.00	100% or ~8.5 1000, 10, 0.2 800, 100, 20, <0.1	
Pre-Cal Reading	450	4.01	7.01		
Post Cal Reading	445	4.01	7.00	8.5 828, 110, 21, 0.3	
Discrepancy	None				
Calib. Successful?	yes				
Calibration by	mo				
Instrument Type, ID	MP20 / YSI 556		MicoTPW / HACH2000		
Calibration Location	Hansville				

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

Appendix F

Fourth Quarter (October) 2014 Laboratory Data Reports

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ANALYTICAL REPORT

Job Number: 280-61044-1

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
10/23/2014 4:44 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/23/2014

cc: Mr. Greg Helland
Mr. Charles Luckie

The test results in this report relate only to the samples in this report and meet all requirements of NELAP, 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.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com



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CASE NARRATIVE

Client: SCS Engineers

Project: Hansville Landfill

Report Number: 280-61044-1

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 10/10/2014; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 4.3° C and 4.6° C.

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)

Sample MW-5 was selected to fulfill the laboratory batch quality control requirements for Method 300.0. Analysis of the laboratory generated MS/MSD for this sample exhibited recoveries of Orthophosphate above the upper control limit indicating the possible presence of a matrix interference.

Sample MW-6 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 and 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: 280-61044-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-61044-1	MW-5					
Chloride		2.8		1.0	mg/L	300.0
Nitrate as N		0.66		0.50	mg/L	300.0
Sulfate		7.2		1.0	mg/L	300.0
Total Alkalinity		54		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		54		5.0	mg/L	SM 2320B
280-61044-2	MW-14					
Vinyl chloride		0.14		0.020	ug/L	8260C SIM
Chloride		19		1.0	mg/L	300.0
Sulfate		16		1.0	mg/L	300.0
Ammonia as N		0.034		0.030	mg/L	350.1
Total Alkalinity		140		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		140		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.0		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		2800		1.0	ug/L	6020
280-61044-3	MW-6					
Vinyl chloride		0.19		0.020	ug/L	8260C SIM
Chloride		25		1.0	mg/L	300.0
Nitrate as N		6.3		0.50	mg/L	300.0
Sulfate		25		1.0	mg/L	300.0
Nitrite as N		0.84		0.50	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		1.1		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		490		1.0	ug/L	6020
280-61044-4	MW-20DD					
Vinyl chloride		0.19		0.020	ug/L	8260C SIM
Chloride		25		1.0	mg/L	300.0
Nitrate as N		6.3		0.50	mg/L	300.0
Sulfate		25		1.0	mg/L	300.0
Nitrite as N		0.83		0.50	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		1.1		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		510		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers

Job Number: 280-61044-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-61044-5	MW-7					
Chloride		1.5		1.0	mg/L	300.0
Sulfate		3.5		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		1.4		1.0	mg/L	SM 5310B

METHOD SUMMARY

Client: SCS Engineers

Job Number: 280-61044-1

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	
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: 280-61044-1

Method	Analyst	Analyst ID
SW846 8260C SIM	Sobol, Renee A	RAS
SW846 6020	Trudell, Lynn-Anne M	LMT
MCAWW 300.0	Phakdee, Ruthaiwan	RP
MCAWW 350.1	Hoefler, Alexandra F	AFH
MCAWW 350.1	Lawrence, Caitlyn M	CML
SM SM 2320B	Bland, Morgan R	MRB
SM SM 5310B	Jewell, Connie C	CCJ

SAMPLE SUMMARY

Client: SCS Engineers

Job Number: 280-61044-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-61044-1	MW-5	Water	10/09/2014 1140	10/10/2014 0950
280-61044-2	MW-14	Water	10/09/2014 1045	10/10/2014 0950
280-61044-3	MW-6	Water	10/09/2014 0955	10/10/2014 0950
280-61044-4	MW-20DD	Water	10/09/2014 0955	10/10/2014 0950
280-61044-5	MW-7	Water	10/09/2014 0855	10/10/2014 0950
280-61044-6TB	TRIP BLANK	Water	10/09/2014 0000	10/10/2014 0950

SAMPLE RESULTS

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-5

Lab Sample ID: 280-61044-1

Client Matrix: Water

Date Sampled: 10/09/2014 1140

Date Received: 10/10/2014 0950

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3159.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2037			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2037				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	98		50 - 150
TBA-d9 (Surr)	113		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-14

Lab Sample ID: 280-61044-2

Client Matrix: Water

Date Sampled: 10/09/2014 1045

Date Received: 10/10/2014 0950

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3160.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2101			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2101				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	100		50 - 150
TBA-d9 (Surr)	111		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-6

Lab Sample ID: 280-61044-3

Client Matrix: Water

Date Sampled: 10/09/2014 0955

Date Received: 10/10/2014 0950

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3161.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2124			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2124				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.19		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	100		50 - 150
TBA-d9 (Surr)	118		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-20DD

Lab Sample ID: 280-61044-4

Date Sampled: 10/09/2014 0955

Client Matrix: Water

Date Received: 10/10/2014 0950

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3162.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2148			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2148				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.19		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	101		50 - 150
TBA-d9 (Surr)	118		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-7

Lab Sample ID: 280-61044-5

Date Sampled: 10/09/2014 0855

Client Matrix: Water

Date Received: 10/10/2014 0950

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3163.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2212			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2212				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	100		50 - 150
TBA-d9 (Surr)	117		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 280-61044-6TB

Date Sampled: 10/09/2014 0000

Client Matrix: Water

Date Received: 10/10/2014 0950

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3164.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2235			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2235				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	98		50 - 150
TBA-d9 (Surr)	109		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-5

Lab Sample ID: 280-61044-1

Date Sampled: 10/09/2014 1140

Client Matrix: Water

Date Received: 10/10/2014 0950

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-248164

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247608

Lab File ID: 201SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/16/2014 0504

Final Weight/Volume: 50 mL

Prep Date: 10/14/2014 1415

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

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-14

Lab Sample ID: 280-61044-2

Client Matrix: Water

Date Sampled: 10/09/2014 1045

Date Received: 10/10/2014 0950

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Prep Method: 3005A

Dilution: 1.0

Analysis Date: 10/16/2014 0508

Prep Date: 10/14/2014 1415

Analysis Batch: 280-248164

Prep Batch: 280-247608

Instrument ID: MT_077

Lab File ID: 202SMPL.d

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	RL
Manganese	2800		1.0

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-6

Lab Sample ID: 280-61044-3

Client Matrix: Water

Date Sampled: 10/09/2014 0955

Date Received: 10/10/2014 0950

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Prep Method: 3005A

Dilution: 1.0

Analysis Date: 10/16/2014 0511

Prep Date: 10/14/2014 1415

Analysis Batch: 280-248164

Prep Batch: 280-247608

Instrument ID: MT_077

Lab File ID: 203SMPL.d

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	RL
Manganese	490		1.0

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-20DD

Lab Sample ID: 280-61044-4

Date Sampled: 10/09/2014 0955

Client Matrix: Water

Date Received: 10/10/2014 0950

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-248164

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247608

Lab File ID: 204SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/16/2014 0515

Final Weight/Volume: 50 mL

Prep Date: 10/14/2014 1415

Analyte	Result (ug/L)	Qualifier	RL
Manganese	510		1.0

Analytical Data

Client: SCS Engineers

Job Number: 280-61044-1

Client Sample ID: MW-7

Lab Sample ID: 280-61044-5

Client Matrix: Water

Date Sampled: 10/09/2014 0855

Date Received: 10/10/2014 0950

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Prep Method: 3005A

Dilution: 1.0

Analysis Date: 10/16/2014 0526

Prep Date: 10/14/2014 1415

Analysis Batch: 280-248164

Prep Batch: 280-247608

Instrument ID: MT_077

Lab File ID: 207SMPL.d

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

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

Client: SCS Engineers

Job Number: 280-61044-1

General Chemistry

Client Sample ID: MW-5

Lab Sample ID: 280-61044-1

Date Sampled: 10/09/2014 1140

Client Matrix: Water

Date Received: 10/10/2014 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	2.8		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1638				
Nitrate as N	0.66		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1638				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1638				
Sulfate	7.2		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1638				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1638				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-248111	Analysis Date: 10/15/2014 1517				
Total Alkalinity	54		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/14/2014 2359				
Bicarbonate Alkalinity	54		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/14/2014 2359				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/14/2014 2359				
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247952	Analysis Date: 10/14/2014 2015				

Client: SCS Engineers

Job Number: 280-61044-1

General Chemistry

Client Sample ID: MW-14

Lab Sample ID: 280-61044-2

Date Sampled: 10/09/2014 1045

Client Matrix: Water

Date Received: 10/10/2014 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	19		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1758				
Nitrate as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1758				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1758				
Sulfate	16		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1758				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1758				
Ammonia as N	0.034		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-248111	Analysis Date: 10/15/2014 1519				
Total Alkalinity	140		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/14/2014 2355				
Bicarbonate Alkalinity	140		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/14/2014 2355				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/14/2014 2355				
Total Organic Carbon - Average	2.0		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247952	Analysis Date: 10/14/2014 2029				

Client: SCS Engineers

Job Number: 280-61044-1

General Chemistry

Client Sample ID: MW-6

Lab Sample ID: 280-61044-3

Date Sampled: 10/09/2014 0955

Client Matrix: Water

Date Received: 10/10/2014 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	25		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1818				
Nitrate as N	6.3		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1818				
Nitrite as N	0.84		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1818				
Sulfate	25		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1818				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1818				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-248111	Analysis Date: 10/15/2014 1521				
Total Alkalinity	150		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0147				
Bicarbonate Alkalinity	150		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0147				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0147				
Total Organic Carbon - Average	1.1		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247952	Analysis Date: 10/14/2014 2143				

Client: SCS Engineers

Job Number: 280-61044-1

General Chemistry

Client Sample ID: MW-20DD

Lab Sample ID: 280-61044-4

Date Sampled: 10/09/2014 0955

Client Matrix: Water

Date Received: 10/10/2014 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	25		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1838				
Nitrate as N	6.3		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1838				
Nitrite as N	0.83		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1838				
Sulfate	25		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1838				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1838				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-248111	Analysis Date: 10/15/2014 1547				
Total Alkalinity	140		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0141				
Bicarbonate Alkalinity	140		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0141				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0141				
Total Organic Carbon - Average	1.1		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247952	Analysis Date: 10/14/2014 2229				

Client: SCS Engineers

Job Number: 280-61044-1

General Chemistry

Client Sample ID: MW-7

Lab Sample ID: 280-61044-5

Date Sampled: 10/09/2014 0855

Client Matrix: Water

Date Received: 10/10/2014 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	1.5		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1858				
Nitrate as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1858				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1858				
Sulfate	3.5		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247341	Analysis Date: 10/10/2014 1858				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247340	Analysis Date: 10/10/2014 1858				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-248569	Analysis Date: 10/17/2014 1849				
Total Alkalinity	140		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0137				
Bicarbonate Alkalinity	140		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0137				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247954	Analysis Date: 10/15/2014 0137				
Total Organic Carbon - Average	1.4		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247952	Analysis Date: 10/14/2014 2313				

DATA REPORTING QUALIFIERS

Client: SCS Engineers

Job Number: 280-61044-1

Lab Section	Qualifier	Description
General Chemistry	F1	MS and/or MSD Recovery exceeds the control limits

QUALITY CONTROL RESULTS

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:480-208474					
LCS 480-208474/3	Lab Control Sample	T	Water	8260C SIM	
LCSD 480-208474/4	Lab Control Sample Duplicate	T	Water	8260C SIM	
MB 480-208474/6	Method Blank	T	Water	8260C SIM	
280-61044-1	MW-5	T	Water	8260C SIM	
280-61044-2	MW-14	T	Water	8260C SIM	
280-61044-3	MW-6	T	Water	8260C SIM	
280-61044-4	MW-20DD	T	Water	8260C SIM	
280-61044-5	MW-7	T	Water	8260C SIM	
280-61044-6TB	TRIP BLANK	T	Water	8260C SIM	
480-68845-B-2 MS	Matrix Spike	T	Water	8260C SIM	
480-68845-B-2 MSD	Matrix Spike Duplicate	T	Water	8260C SIM	

Report Basis

T = Total

Metals

Prep Batch: 280-247608					
LCS 280-247608/2-A	Lab Control Sample	R	Water	3005A	
MB 280-247608/1-A	Method Blank	R	Water	3005A	
280-61044-1	MW-5	D	Water	3005A	
280-61044-2	MW-14	D	Water	3005A	
280-61044-3	MW-6	D	Water	3005A	
280-61044-4	MW-20DD	D	Water	3005A	
280-61044-5	MW-7	D	Water	3005A	
280-61044-5MS	Matrix Spike	D	Water	3005A	
280-61044-5MSD	Matrix Spike Duplicate	D	Water	3005A	
Analysis Batch:280-248164					
LCS 280-247608/2-A	Lab Control Sample	R	Water	6020	280-247608
MB 280-247608/1-A	Method Blank	R	Water	6020	280-247608
280-61044-1	MW-5	D	Water	6020	280-247608
280-61044-2	MW-14	D	Water	6020	280-247608
280-61044-3	MW-6	D	Water	6020	280-247608
280-61044-4	MW-20DD	D	Water	6020	280-247608
280-61044-5	MW-7	D	Water	6020	280-247608
280-61044-5MS	Matrix Spike	D	Water	6020	280-247608
280-61044-5MSD	Matrix Spike Duplicate	D	Water	6020	280-247608

Report Basis

D = Dissolved

R = Total Recoverable

TestAmerica Denver

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-247340					
LCS 280-247340/11	Lab Control Sample	T	Water	300.0	
LCSD 280-247340/12	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-247340/13	Method Blank	T	Water	300.0	
280-61044-A-1 DUDU	Duplicate	T	Water	300.0	
280-61044-A-1 MSMS	Matrix Spike	T	Water	300.0	
280-61044-A-1 MSDMSD	Matrix Spike Duplicate	T	Water	300.0	
280-61044-1	MW-5	T	Water	300.0	
280-61044-2	MW-14	T	Water	300.0	
280-61044-3	MW-6	T	Water	300.0	
280-61044-4	MW-20DD	T	Water	300.0	
280-61044-5	MW-7	T	Water	300.0	
Analysis Batch:280-247341					
LCS 280-247341/11	Lab Control Sample	T	Water	300.0	
LCSD 280-247341/12	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-247341/13	Method Blank	T	Water	300.0	
280-61044-1	MW-5	T	Water	300.0	
280-61044-1DU	Duplicate	T	Water	300.0	
280-61044-1MS	Matrix Spike	T	Water	300.0	
280-61044-1MSD	Matrix Spike Duplicate	T	Water	300.0	
280-61044-2	MW-14	T	Water	300.0	
280-61044-3	MW-6	T	Water	300.0	
280-61044-4	MW-20DD	T	Water	300.0	
280-61044-5	MW-7	T	Water	300.0	
Analysis Batch:280-247952					
LCS 280-247952/3	Lab Control Sample	T	Water	SM 5310B	
LCS 280-247952/35	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-247952/36	Lab Control Sample Duplicate	T	Water	SM 5310B	
LCSD 280-247952/4	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-247952/37	Method Blank	T	Water	SM 5310B	
MB 280-247952/5	Method Blank	T	Water	SM 5310B	
280-61044-1	MW-5	T	Water	SM 5310B	
280-61044-2	MW-14	T	Water	SM 5310B	
280-61044-3	MW-6	T	Water	SM 5310B	
280-61044-4	MW-20DD	T	Water	SM 5310B	
280-61044-4MS	Matrix Spike	T	Water	SM 5310B	
280-61044-4MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-61044-5	MW-7	T	Water	SM 5310B	

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-247954					
LCS 280-247954/31	Lab Control Sample	T	Water	SM 2320B	
LCS 280-247954/4	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-247954/32	Lab Control Sample Duplicate	T	Water	SM 2320B	
LCSD 280-247954/5	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-247954/33	Method Blank	T	Water	SM 2320B	
MB 280-247954/6	Method Blank	T	Water	SM 2320B	
280-61013-A-5 DU	Duplicate	T	Water	SM 2320B	
280-61044-1	MW-5	T	Water	SM 2320B	
280-61044-2	MW-14	T	Water	SM 2320B	
280-61044-3	MW-6	T	Water	SM 2320B	
280-61044-4	MW-20DD	T	Water	SM 2320B	
280-61044-5	MW-7	T	Water	SM 2320B	
Analysis Batch:280-248111					
LCS 280-248111/104	Lab Control Sample	T	Water	350.1	
LCS 280-248111/145	Lab Control Sample	T	Water	350.1	
LCSD 280-248111/105	Lab Control Sample Duplicate	T	Water	350.1	
LCSD 280-248111/146	Lab Control Sample Duplicate	T	Water	350.1	
MB 280-248111/106	Method Blank	T	Water	350.1	
MB 280-248111/147	Method Blank	T	Water	350.1	
280-61044-1	MW-5	T	Water	350.1	
280-61044-2	MW-14	T	Water	350.1	
280-61044-3	MW-6	T	Water	350.1	
280-61044-3MS	Matrix Spike	T	Water	350.1	
280-61044-3MSD	Matrix Spike Duplicate	T	Water	350.1	
280-61044-4	MW-20DD	T	Water	350.1	
Analysis Batch:280-248569					
LCS 280-248569/19	Lab Control Sample	T	Water	350.1	
LCSD 280-248569/20	Lab Control Sample Duplicate	T	Water	350.1	
MB 280-248569/21	Method Blank	T	Water	350.1	
280-61044-5	MW-7	T	Water	350.1	
280-61044-5MS	Matrix Spike	T	Water	350.1	
280-61044-5MSD	Matrix Spike Duplicate	T	Water	350.1	

Report Basis

T = Total

Client: SCS Engineers

Job Number: 280-61044-1

Surrogate Recovery Report

8260C SIM Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	TBA %Rec
280-61044-1	MW-5	98	113
280-61044-2	MW-14	100	111
280-61044-3	MW-6	100	118
280-61044-4	MW-20DD	101	118
280-61044-5	MW-7	100	117
280-61044-6	TRIP BLANK	98	109
MB 480-208474/6		98	107
LCS 480-208474/3		102	110
LCSD 480-208474/4		102	107
480-68845-B-2 MS		104	120
480-68845-B-2 MSD		103	131

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

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

Lab Sample ID:	MB 480-208474/6	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3153.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1754	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1754				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020
Surrogate	% Rec	Acceptance Limits	
Dibromofluoromethane (Surr)	98	50 - 150	
TBA-d9 (Surr)	107	50 - 150	

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-208474/3	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3150.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1644	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1644				25 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-208474/4	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3151.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1707	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1707				25 mL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Vinyl chloride	114	113	50 - 150	1	20		
Surrogate	LCS % Rec		LCSD % Rec	Acceptance Limits			
Dibromofluoromethane (Surr)	102		102	50 - 150			
TBA-d9 (Surr)	110		107	50 - 150			

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID: LCS 480-208474/3 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/17/2014 1644
Prep Date: 10/17/2014 1644
Leach Date: N/A

LCSD Lab Sample ID: LCSD 480-208474/4
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/17/2014 1707
Prep Date: 10/17/2014 1707
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.200	0.200	0.228	0.226

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

MS Lab Sample ID: 480-68845-B-2 MS
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0106
Prep Date: 10/18/2014 0106
Leach Date: N/A

Analysis Batch: 480-208474
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: HP5973J
Lab File ID: J3170.D
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

MSD Lab Sample ID: 480-68845-B-2 MSD
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0130
Prep Date: 10/18/2014 0130
Leach Date: N/A

Analysis Batch: 480-208474
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: HP5973J
Lab File ID: J3171.D
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Vinyl chloride	81	67	50 - 150	4	20		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
Dibromofluoromethane (Surr)		104	103			50 - 150	
TBA-d9 (Surr)		120	131			50 - 150	

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

MS Lab Sample ID: 480-68845-B-2 MS Units: ug/L
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0106
Prep Date: 10/18/2014 0106
Leach Date: N/A

MSD Lab Sample ID: 480-68845-B-2 MSD
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0130
Prep Date: 10/18/2014 0130
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Vinyl chloride	28	10.0	10.0	36.4	35.0

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-247608

Lab Sample ID: MB 280-247608/1-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 0456
Prep Date: 10/14/2014 1415
Leach Date: N/A

Analysis Batch: 280-248164
Prep Batch: 280-247608
Leach Batch: N/A
Units: ug/L

Method: 6020 Preparation: 3005A Total Recoverable

Instrument ID: MT_077
Lab File ID: 199_BLK.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Manganese	ND		1.0

Lab Control Sample - Batch: 280-247608

Lab Sample ID: LCS 280-247608/2-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 0500
Prep Date: 10/14/2014 1415
Leach Date: N/A

Analysis Batch: 280-248164
Prep Batch: 280-247608
Leach Batch: N/A
Units: ug/L

Method: 6020 Preparation: 3005A Total Recoverable

Instrument ID: MT_077
Lab File ID: 200_LCS.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Manganese	40.0	40.8	102	85 - 117	

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-247608

Method: 6020 Preparation: 3005A Dissolved

MS Lab Sample ID: 280-61044-5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 0534
Prep Date: 10/14/2014 1415
Leach Date: N/A

Analysis Batch: 280-248164
Prep Batch: 280-247608
Leach Batch: N/A

Instrument ID: MT_077
Lab File ID: 209SMPL.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 280-61044-5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 0537
Prep Date: 10/14/2014 1415
Leach Date: N/A

Analysis Batch: 280-248164
Prep Batch: 280-247608
Leach Batch: N/A

Instrument ID: MT_077
Lab File ID: 210SMPL.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Manganese	99	100	85 - 117	1	20		

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247608**

**Method: 6020
Preparation: 3005A
Dissolved**

MS Lab Sample ID: 280-61044-5 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 0534
Prep Date: 10/14/2014 1415
Leach Date: N/A

MSD Lab Sample ID: 280-61044-5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 0537
Prep Date: 10/14/2014 1415
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Manganese	ND	40.0	40.0	39.9	40.3

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-247340

Method: 300.0

Preparation: N/A

Lab Sample ID: MB 280-247340/13
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1618
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247340
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_IonChrom11
Lab File ID: 0013.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	RL
Nitrate as N	ND		0.50
Nitrite as N	ND		0.50
Orthophosphate as P	ND		0.50

Method Reporting Limit Check - Batch: 280-247340

Method: 300.0

Preparation: N/A

Lab Sample ID: MRL 280-247340/10
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1519
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247340
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_IonChrom11
Lab File ID: 0010.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N	0.200	ND	119	50 - 150	
Nitrite as N	0.200	ND	122	50 - 150	
Orthophosphate as P	0.200	ND	95	50 - 150	

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 280-247340

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-247340/11	Analysis Batch:	280-247340	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0011.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1539	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247340/12	Analysis Batch:	280-247340	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0012.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1559	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Nitrate as N	97	96	90 - 110	0	10		
Nitrite as N	97	98	90 - 110	1	10		
Orthophosphate as P	99	100	90 - 110	1	10		

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247340

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-247340/11	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-247340/12
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/10/2014 1539			Analysis Date:	10/10/2014 1559
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 as N	5.00	5.00	4.83	4.82
Nitrite as N	5.00	5.00	4.86	4.91
Orthophosphate as P	5.00	5.00	4.93	4.99

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247340**

**Method: 300.0
Preparation: N/A**

MS Lab Sample ID:	280-61044-A-1 MS	Analysis Batch:	280-247340	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0016.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1718			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-61044-A-1 MSD	Analysis Batch:	280-247340	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0017.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1738			Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Nitrate as N	102	103	80 - 120	1	20		
Nitrite as N	102	104	80 - 120	2	20		
Orthophosphate as P	153	155	80 - 120	1	20	F1	F1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247340**

**Method: 300.0
Preparation: N/A**

MS Lab Sample ID:	280-61044-A-1 MS	Units:	mg/L	MSD Lab Sample ID:	280-61044-A-1 MSD
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/10/2014 1718			Analysis Date:	10/10/2014 1738
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 as N	0.73	5.00	5.00	5.83	5.86		
Nitrite as N	ND	5.00	5.00	5.10	5.22		
Orthophosphate as P	ND	5.00	5.00	7.65	7.75	F1	F1

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Duplicate - Batch: 280-247340

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-61044-A-1 DU	Analysis Batch:	280-247340	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1658	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 as N	0.73	0.663	9	15	
Nitrite as N	ND	ND	NC	15	
Orthophosphate as P	ND	ND	NC	15	

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-247341

Method: 300.0

Preparation: N/A

Lab Sample ID:	MB 280-247341/13	Analysis Batch:	280-247341	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0013.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1618	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: 280-247341

Method: 300.0

Preparation: N/A

Lab Sample ID:	MRL 280-247341/10	Analysis Batch:	280-247341	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0010.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1519	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	95	50 - 150	
Sulfate	2.50	ND	98	50 - 150	

Lab Control Sample/

Method: 300.0

Lab Control Sample Duplicate Recovery Report - Batch: 280-247341

Preparation: N/A

LCS Lab Sample ID:	LCS 280-247341/11	Analysis Batch:	280-247341	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0011.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1539	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247341/12	Analysis Batch:	280-247341	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0012.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/10/2014 1559	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Chloride	95	95	90 - 110	0	10		
Sulfate	92	92	90 - 110	0	10		

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247341

Method: 300.0
Preparation: N/A

LCS Lab Sample ID: LCS 280-247341/11 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1539
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247341/12
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1559
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Chloride	100	100	94.9	95.1
Sulfate	100	100	91.9	92.1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-247341

Method: 300.0
Preparation: N/A

MS Lab Sample ID: 280-61044-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1718
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247341
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: WC_IonChrom11
Lab File ID: 0016.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
25 uL

MSD Lab Sample ID: 280-61044-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1738
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247341
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: WC_IonChrom11
Lab File ID: 0017.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
25 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Chloride	91	92	80 - 120	1	20		
Sulfate	88	89	80 - 120	1	20		

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-247341

Method: 300.0
Preparation: N/A

MS Lab Sample ID: 280-61044-1 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1718
Prep Date: N/A
Leach Date: N/A

MSD Lab Sample ID: 280-61044-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1738
Prep Date: N/A
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	2.8	25.0	25.0	25.4	25.7
Sulfate	7.2	25.0	25.0	29.3	29.5

Duplicate - Batch: 280-247341

Method: 300.0
Preparation: N/A

Lab Sample ID: 280-61044-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1658
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247341
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_IonChrom11
Lab File ID: 0015.d
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
25 uL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	2.8	2.74	0.6	15	
Sulfate	7.2	7.18	0.1	15	

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-248111

Method: 350.1 Preparation: N/A

Lab Sample ID: MB 280-248111/106
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 1409
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-248111
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_Alpha 3
Lab File ID: E:\FLOW_4\101514.RST
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Method Blank - Batch: 280-248111

Method: 350.1 Preparation: N/A

Lab Sample ID: MB 280-248111/147
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 1531
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-248111
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_Alpha 3
Lab File ID: E:\FLOW_4\101514.RST
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-248111**

**Method: 350.1
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-248111/104	Analysis Batch:	280-248111	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101514.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/15/2014 1405	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-248111/105	Analysis Batch:	280-248111	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101514.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/15/2014 1407	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Ammonia as N	107	99	90 - 110	8	10		

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-248111**

**Method: 350.1
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-248111/145	Analysis Batch:	280-248111	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101514.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/15/2014 1527	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-248111/146	Analysis Batch:	280-248111	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101514.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/15/2014 1529	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Ammonia as N	106	108	90 - 110	2	10		

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-248111

Method: 350.1
Preparation: N/A

LCS Lab Sample ID: LCS 280-248111/104 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 1405
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-248111/105
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 1407
Prep 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	2.68	2.47

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-248111

Method: 350.1
Preparation: N/A

LCS Lab Sample ID: LCS 280-248111/145 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 1527
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-248111/146
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 1529
Prep 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	2.65	2.69

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-248111**

**Method: 350.1
Preparation: N/A**

MS Lab Sample ID:	280-61044-3	Analysis Batch:	280-248111	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101514.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/15/2014 1523			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-61044-3	Analysis Batch:	280-248111	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101514.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/15/2014 1525			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Ammonia as N	117	117	90 - 110	0	10	F1	F1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-248111**

**Method: 350.1
Preparation: N/A**

MS Lab Sample ID:	280-61044-3	Units:	mg/L	MSD Lab Sample ID:	280-61044-3
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/15/2014 1523			Analysis Date:	10/15/2014 1525
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	1.17 F1	1.17 F1

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-248569

Method: 350.1

Preparation: N/A

Lab Sample ID:	MB 280-248569/21	Analysis Batch:	280-248569	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101714B.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/17/2014 1847	Units:	mg/L	Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Lab Control Sample/

Method: 350.1

Lab Control Sample Duplicate Recovery Report - Batch: 280-248569

Preparation: N/A

LCS Lab Sample ID:	LCS 280-248569/19	Analysis Batch:	280-248569	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101714B.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/17/2014 1843	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-248569/20	Analysis Batch:	280-248569	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101714B.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/17/2014 1845	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Ammonia as N	100	100	90 - 110	0	10		

Laboratory Control/

Method: 350.1

Laboratory Duplicate Data Report - Batch: 280-248569

Preparation: N/A

LCS Lab Sample ID:	LCS 280-248569/19	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-248569/20
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/17/2014 1843			Analysis Date:	10/17/2014 1845
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	2.49	2.49

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-248569**

**Method: 350.1
Preparation: N/A**

MS Lab Sample ID:	280-61044-5	Analysis Batch:	280-248569	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101714B.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/17/2014 1851			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-61044-5	Analysis Batch:	280-248569	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101714B.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/17/2014 1853			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Ammonia as N	100	99	90 - 110	1	10		

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-248569**

**Method: 350.1
Preparation: N/A**

MS Lab Sample ID:	280-61044-5	Units:	mg/L	MSD Lab Sample ID:	280-61044-5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/17/2014 1851			Analysis Date:	10/17/2014 1853
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	1.00	0.993

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-247954

Method: SM 2320B

Preparation: N/A

Lab Sample ID: MB 280-247954/6
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2219
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247954
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101414c.TXT
Initial Weight/Volume:
Final Weight/Volume:

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

Method Blank - Batch: 280-247954

Method: SM 2320B

Preparation: N/A

Lab Sample ID: MB 280-247954/33
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 0022
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247954
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101414c.TXT
Initial Weight/Volume:
Final Weight/Volume:

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

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247954**

**Method: SM 2320B
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247954/4	Analysis Batch:	280-247954	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414c.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 2209	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247954/5	Analysis Batch:	280-247954	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414c.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 2215	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Alkalinity	94	94	90 - 110	0	10		

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247954**

**Method: SM 2320B
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247954/31	Analysis Batch:	280-247954	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414c.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/15/2014 0013	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247954/32	Analysis Batch:	280-247954	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414c.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/15/2014 0017	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Alkalinity	93	93	90 - 110	0	10		

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247954

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID: LCS 280-247954/4 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2209
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247954/5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2215
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Alkalinity	200	200	188	187

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247954

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID: LCS 280-247954/31 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 0013
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247954/32
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/15/2014 0017
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Alkalinity	200	200	187	187

Duplicate - Batch: 280-247954

Method: SM 2320B
Preparation: N/A

Lab Sample ID: 280-61013-A-5 DU
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2228
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247954
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101414c.TXT
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	520	505	2	10	

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Method Blank - Batch: 280-247952

Method: SM 5310B

Preparation: N/A

Lab Sample ID: MB 280-247952/5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1314
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247952
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_SHI3
Lab File ID: 101414.txt
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Total Organic Carbon - Average	ND		1.0

Method Blank - Batch: 280-247952

Method: SM 5310B

Preparation: N/A

Lab Sample ID: MB 280-247952/37
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2113
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247952
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_SHI3
Lab File ID: 101414.txt
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Total Organic Carbon - Average	ND		1.0

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247952**

**Method: SM 5310B
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247952/3	Analysis Batch:	280-247952	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 1240	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247952/4	Analysis Batch:	280-247952	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 1255	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Organic Carbon - Average	100	100	88 - 112	0	15		

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247952**

**Method: SM 5310B
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247952/35	Analysis Batch:	280-247952	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 2044	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247952/36	Analysis Batch:	280-247952	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 2059	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Organic Carbon - Average	98	100	88 - 112	2	15		

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-247952**

**Method: SM 5310B
Preparation: N/A**

LCS Lab Sample ID: LCS 280-247952/3 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1240
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247952/4
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1255
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	24.9	24.9

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-247952**

**Method: SM 5310B
Preparation: N/A**

LCS Lab Sample ID: LCS 280-247952/35 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2044
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247952/36
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 2059
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	24.5	25.0

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247952**

**Method: SM 5310B
Preparation: N/A**

MS Lab Sample ID:	280-61044-4	Analysis Batch:	280-247952	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 2244			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-61044-4	Analysis Batch:	280-247952	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 2258			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Total Organic Carbon - Average	99	99	88 - 112	0	15		

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247952**

**Method: SM 5310B
Preparation: N/A**

MS Lab Sample ID:	280-61044-4	Units:	mg/L	MSD Lab Sample ID:	280-61044-4
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/14/2014 2244			Analysis Date:	10/14/2014 2258
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	1.1	25.0	25.0	25.7	25.8

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Chronicle

Lab ID: 280-61044-1

Client ID: MW-5

Sample Date/Time: 10/09/2014 11:40

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-61044-H-1		480-208474		10/17/2014 20:37	1	TAL BUF	RAS
A:8260C SIM	280-61044-H-1		480-208474		10/17/2014 20:37	1	TAL BUF	RAS
P:3005A	280-61044-D-1-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-1-A		280-248164	280-247608	10/16/2014 05:04	1	TAL DEN	LMT
A:300.0	280-61044-A-1		280-247340		10/10/2014 16:38	1	TAL DEN	RP
A:300.0	280-61044-A-1		280-247341		10/10/2014 16:38	1	TAL DEN	RP
A:350.1	280-61044-C-1		280-248111		10/15/2014 15:17	1	TAL DEN	AFH
A:SM 2320B	280-61044-A-1		280-247954		10/14/2014 23:59	1	TAL DEN	MRB
A:SM 5310B	280-61044-C-1		280-247952		10/14/2014 20:15	1	TAL DEN	CCJ

Lab ID: 280-61044-1 MS

Client ID: MW-5

Sample Date/Time: 10/09/2014 11:40

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-61044-A-1 MS		280-247341		10/10/2014 17:18	1	TAL DEN	RP
A:300.0	280-61044-A-1 MS		280-247340		10/10/2014 17:18	1	TAL DEN	RP

Lab ID: 280-61044-1 MSD

Client ID: MW-5

Sample Date/Time: 10/09/2014 11:40

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-61044-A-1 MSD		280-247341		10/10/2014 17:38	1	TAL DEN	RP
A:300.0	280-61044-A-1 MSD		280-247340		10/10/2014 17:38	1	TAL DEN	RP

Lab ID: 280-61044-1 DU

Client ID: MW-5

Sample Date/Time: 10/09/2014 11:40

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-61044-A-1 DU		280-247341		10/10/2014 16:58	1	TAL DEN	RP
A:300.0	280-61044-A-1 DU		280-247340		10/10/2014 16:58	1	TAL DEN	RP

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Chronicle

Lab ID: 280-61044-2

Client ID: MW-14

Sample Date/Time: 10/09/2014 10:45

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-61044-H-2		480-208474		10/17/2014 21:01	1	TAL BUF	RAS
A:8260C SIM	280-61044-H-2		480-208474		10/17/2014 21:01	1	TAL BUF	RAS
P:3005A	280-61044-D-2-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-2-A		280-248164	280-247608	10/16/2014 05:08	1	TAL DEN	LMT
A:300.0	280-61044-A-2		280-247340		10/10/2014 17:58	1	TAL DEN	RP
A:300.0	280-61044-A-2		280-247341		10/10/2014 17:58	1	TAL DEN	RP
A:350.1	280-61044-C-2		280-248111		10/15/2014 15:19	1	TAL DEN	AFH
A:SM 2320B	280-61044-A-2		280-247954		10/14/2014 23:55	1	TAL DEN	MRB
A:SM 5310B	280-61044-C-2		280-247952		10/14/2014 20:29	1	TAL DEN	CCJ

Lab ID: 280-61044-3

Client ID: MW-6

Sample Date/Time: 10/09/2014 09:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-61044-H-3		480-208474		10/17/2014 21:24	1	TAL BUF	RAS
A:8260C SIM	280-61044-H-3		480-208474		10/17/2014 21:24	1	TAL BUF	RAS
P:3005A	280-61044-D-3-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-3-A		280-248164	280-247608	10/16/2014 05:11	1	TAL DEN	LMT
A:300.0	280-61044-A-3		280-247340		10/10/2014 18:18	1	TAL DEN	RP
A:300.0	280-61044-A-3		280-247341		10/10/2014 18:18	1	TAL DEN	RP
A:350.1	280-61044-C-3		280-248111		10/15/2014 15:21	1	TAL DEN	AFH
A:SM 2320B	280-61044-A-3		280-247954		10/15/2014 01:47	1	TAL DEN	MRB
A:SM 5310B	280-61044-C-3		280-247952		10/14/2014 21:43	1	TAL DEN	CCJ

Lab ID: 280-61044-3 MS

Client ID: MW-6

Sample Date/Time: 10/09/2014 09:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-61044-C-3 MS		280-248111		10/15/2014 15:23	1	TAL DEN	AFH

Lab ID: 280-61044-3 MSD

Client ID: MW-6

Sample Date/Time: 10/09/2014 09:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-61044-C-3 MSD		280-248111		10/15/2014 15:25	1	TAL DEN	AFH

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Chronicle

Lab ID: 280-61044-4

Client ID: MW-20DD

Sample Date/Time: 10/09/2014 09:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-61044-H-4		480-208474		10/17/2014 21:48	1	TAL BUF	RAS
A:8260C SIM	280-61044-H-4		480-208474		10/17/2014 21:48	1	TAL BUF	RAS
P:3005A	280-61044-D-4-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-4-A		280-248164	280-247608	10/16/2014 05:15	1	TAL DEN	LMT
A:300.0	280-61044-A-4		280-247340		10/10/2014 18:38	1	TAL DEN	RP
A:300.0	280-61044-A-4		280-247341		10/10/2014 18:38	1	TAL DEN	RP
A:350.1	280-61044-B-4		280-248111		10/15/2014 15:47	1	TAL DEN	AFH
A:SM 2320B	280-61044-A-4		280-247954		10/15/2014 01:41	1	TAL DEN	MRB
A:SM 5310B	280-61044-C-4		280-247952		10/14/2014 22:29	1	TAL DEN	CCJ

Lab ID: 280-61044-4 MS

Client ID: MW-20DD

Sample Date/Time: 10/09/2014 09:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-61044-C-4 MS		280-247952		10/14/2014 22:44	1	TAL DEN	CCJ

Lab ID: 280-61044-4 MSD

Client ID: MW-20DD

Sample Date/Time: 10/09/2014 09:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-61044-C-4 MSD		280-247952		10/14/2014 22:58	1	TAL DEN	CCJ

Lab ID: 280-61044-5

Client ID: MW-7

Sample Date/Time: 10/09/2014 08:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-61044-H-5		480-208474		10/17/2014 22:12	1	TAL BUF	RAS
A:8260C SIM	280-61044-H-5		480-208474		10/17/2014 22:12	1	TAL BUF	RAS
P:3005A	280-61044-D-5-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-5-A		280-248164	280-247608	10/16/2014 05:26	1	TAL DEN	LMT
A:300.0	280-61044-A-5		280-247340		10/10/2014 18:58	1	TAL DEN	RP
A:300.0	280-61044-A-5		280-247341		10/10/2014 18:58	1	TAL DEN	RP
A:350.1	280-61044-B-5		280-248569		10/17/2014 18:49	1	TAL DEN	CML
A:SM 2320B	280-61044-A-5		280-247954		10/15/2014 01:37	1	TAL DEN	MRB
A:SM 5310B	280-61044-B-5		280-247952		10/14/2014 23:13	1	TAL DEN	CCJ

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Chronicle

Lab ID: 280-61044-5 MS

Client ID: MW-7

Sample Date/Time: 10/09/2014 08:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-61044-D-5-B MS		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-5-B MS		280-248164	280-247608	10/16/2014 05:34	1	TAL DEN	LMT
A:350.1	280-61044-B-5 MS		280-248569		10/17/2014 18:51	1	TAL DEN	CML

Lab ID: 280-61044-5 MSD

Client ID: MW-7

Sample Date/Time: 10/09/2014 08:55

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-61044-D-5-C MSD		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	280-61044-D-5-C MSD		280-248164	280-247608	10/16/2014 05:37	1	TAL DEN	LMT
A:350.1	280-61044-B-5 MSD		280-248569		10/17/2014 18:53	1	TAL DEN	CML

Lab ID: 280-61044-6

Client ID: TRIP BLANK

Sample Date/Time: 10/09/2014 00:00

Received Date/Time: 10/10/2014 09:50

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-61044-C-6		480-208474		10/17/2014 22:35	1	TAL BUF	RAS
A:8260C SIM	280-61044-C-6		480-208474		10/17/2014 22:35	1	TAL BUF	RAS

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 480-208474/6		480-208474		10/17/2014 17:54	1	TAL BUF	RAS
A:8260C SIM	MB 480-208474/6		480-208474		10/17/2014 17:54	1	TAL BUF	RAS
P:3005A	MB 280-247608/1-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	MB 280-247608/1-A		280-248164	280-247608	10/16/2014 04:56	1	TAL DEN	LMT
A:300.0	MB 280-247340/13		280-247340		10/10/2014 16:18	1	TAL DEN	RP
A:300.0	MB 280-247341/13		280-247341		10/10/2014 16:18	1	TAL DEN	RP
A:350.1	MB 280-248111/106		280-248111		10/15/2014 14:09	1	TAL DEN	AFH
A:350.1	MB 280-248111/147		280-248111		10/15/2014 15:31	1	TAL DEN	AFH
A:350.1	MB 280-248569/21		280-248569		10/17/2014 18:47	1	TAL DEN	CML
A:SM 2320B	MB 280-247954/6		280-247954		10/14/2014 22:19	1	TAL DEN	MRB
A:SM 2320B	MB 280-247954/33		280-247954		10/15/2014 00:22	1	TAL DEN	MRB
A:SM 5310B	MB 280-247952/5		280-247952		10/14/2014 13:14	1	TAL DEN	CCJ
A:SM 5310B	MB 280-247952/37		280-247952		10/14/2014 21:13	1	TAL DEN	CCJ

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Chronicle

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 480-208474/3		480-208474		10/17/2014 16:44	1	TAL BUF	RAS
A:8260C SIM	LCS 480-208474/3		480-208474		10/17/2014 16:44	1	TAL BUF	RAS
P:3005A	LCS 280-247608/2-A		280-248164	280-247608	10/14/2014 14:15	1	TAL DEN	WDS
A:6020	LCS 280-247608/2-A		280-248164	280-247608	10/16/2014 05:00	1	TAL DEN	LMT
A:300.0	LCS 280-247340/11		280-247340		10/10/2014 15:39	1	TAL DEN	RP
A:300.0	LCS 280-247341/11		280-247341		10/10/2014 15:39	1	TAL DEN	RP
A:350.1	LCS 280-248111/104		280-248111		10/15/2014 14:05	1	TAL DEN	AFH
A:350.1	LCS 280-248111/145		280-248111		10/15/2014 15:27	1	TAL DEN	AFH
A:350.1	LCS 280-248569/19		280-248569		10/17/2014 18:43	1	TAL DEN	CML
A:SM 2320B	LCS 280-247954/4		280-247954		10/14/2014 22:09	1	TAL DEN	MRB
A:SM 2320B	LCS 280-247954/31		280-247954		10/15/2014 00:13	1	TAL DEN	MRB
A:SM 5310B	LCS 280-247952/3		280-247952		10/14/2014 12:40	1	TAL DEN	CCJ
A:SM 5310B	LCS 280-247952/35		280-247952		10/14/2014 20:44	1	TAL DEN	CCJ

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 480-208474/4		480-208474		10/17/2014 17:07	1	TAL BUF	RAS
A:8260C SIM	LCSD 480-208474/4		480-208474		10/17/2014 17:07	1	TAL BUF	RAS
A:300.0	LCSD 280-247340/12		280-247340		10/10/2014 15:59	1	TAL DEN	RP
A:300.0	LCSD 280-247341/12		280-247341		10/10/2014 15:59	1	TAL DEN	RP
A:350.1	LCSD 280-248111/105		280-248111		10/15/2014 14:07	1	TAL DEN	AFH
A:350.1	LCSD 280-248111/146		280-248111		10/15/2014 15:29	1	TAL DEN	AFH
A:350.1	LCSD 280-248569/20		280-248569		10/17/2014 18:45	1	TAL DEN	CML
A:SM 2320B	LCSD 280-247954/5		280-247954		10/14/2014 22:15	1	TAL DEN	MRB
A:SM 2320B	LCSD 280-247954/32		280-247954		10/15/2014 00:17	1	TAL DEN	MRB
A:SM 5310B	LCSD 280-247952/4		280-247952		10/14/2014 12:55	1	TAL DEN	CCJ
A:SM 5310B	LCSD 280-247952/36		280-247952		10/14/2014 20:59	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 280-247340/10		280-247340		10/10/2014 15:19	1	TAL DEN	RP
A:300.0	MRL 280-247341/10		280-247341		10/10/2014 15:19	1	TAL DEN	RP

Quality Control Results

Client: SCS Engineers

Job Number: 280-61044-1

Laboratory Chronicle

Lab ID: MS

Client ID: N/A

Sample Date/Time: 10/07/2014 14:50

Received Date/Time: 10/08/2014 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	480-68845-B-2 MS		480-208474		10/18/2014 01:06	50	TAL BUF	RAS
A:8260C SIM	480-68845-B-2 MS		480-208474		10/18/2014 01:06	50	TAL BUF	RAS

Lab ID: MSD

Client ID: N/A

Sample Date/Time: 10/07/2014 14:50

Received Date/Time: 10/08/2014 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	480-68845-B-2 MSD		480-208474		10/18/2014 01:30	50	TAL BUF	RAS
A:8260C SIM	480-68845-B-2 MSD		480-208474		10/18/2014 01:30	50	TAL BUF	RAS

Lab ID: DU

Client ID: N/A

Sample Date/Time: 10/08/2014 13:02

Received Date/Time: 10/10/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 2320B	280-61013-A-5 DU		280-247954		10/14/2014 22:28	1	TAL DEN	MRB

Lab References:

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver



Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 October 2014

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

RE: Project: Hansville LF
ARI Job No.: ZE42

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 ten water samples on October 10, 2014. 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 ZE42

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

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



Date: 10/10/14
Page 1 of 1
No. of Coolers: 1
Cooler Temps:

ARI Assigned Number: ZF42
ARI Client Company: SCS Engineers
Client Contact: Dan Venchiarutti
Client Project Name: Hansville LF
Client Project #: 04211017 03
Samplers: Matt O'Hare

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested				Notes/Comments
					Low Level Dissolved Arsenic				
SW-7	10/8/2014	900	W	1	X				Direct sub from
SW-6	10/8/2014	935	W	1	X				TestAmerica
SW-4	10/8/2014	1015	W	1	X				
SW-1	10/8/2014	1100	W	1	X				
MW-12I	10/8/2014	1145	W	1	X				
MW-13D	10/8/2014	1240	W	1	X				
MW-7	10/8/2014	855	W	1	X				
MW-6	10/8/2014	955	W	1	X				
MW-20DD	10/8/2014	955	W	1	X				
MW-14	10/8/2014	1045	W	1	X				
MW-5	10/8/2014	1140	W	1	X				
Comments/Special Instructions	Relinquished by (Signature)	[Signature]			Received by (Signature)	[Signature]			Received by (Signature)
	Printed Name	Matt O'Hare			Printed Name	Rich Hudson			Printed Name
	Company	SCS			Company	ARI			Company
	Date & Time	10/10/14 1215			Date & Time	10/10/14 1215			Date & Time

ZF42-00000

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

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



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client SCS Engineers

Project Name Hansville LF

COC No(s): _____ NA

Delivered by: Fed-Ex UPS ☒ Courier ☐ Hand Delivered Other: _____

Assigned ARI Job No: ZE42

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)

Time: 1255

4.2

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90877952

Cooler Accepted by: [Signature]

Date: 10/10/14

Time: 1215

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: _____

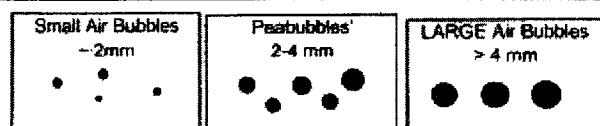
Samples Logged by: 15 Date: 10-10-14 Time: 1321

**** 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:

By: _____ Date: _____



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



ARI Job No: ZE42
Client: Test America
Project Event: 04211017.03
Project Name: Hansville LF

Sample ID	ARI		Matrix	Sample Date/Time	VTSR
	Lab ID	LIMS ID			
1. SW-7	ZE42A	14-21362	Water	10/08/14 09:00	10/10/14 12:15
2. SW-6	ZE42B	14-21363	Water	10/08/14 09:35	10/10/14 12:15
3. SW-4	ZE42C	14-21364	Water	10/08/14 10:15	10/10/14 12:15
4. SW-1	ZE42D	14-21365	Water	10/08/14 11:00	10/10/14 12:15
5. MW-12I	ZE42E	14-21366	Water	10/08/14 11:45	10/10/14 12:15
6. MW-13D	ZE42F	14-21367	Water	10/08/14 12:40	10/10/14 12:15
7. MW-7	ZE42G	14-21368	Water	10/08/14 08:55	10/10/14 12:15
8. MW-6	ZE42H	14-21369	Water	10/08/14 09:55	10/10/14 12:15
9. MW-20DD	ZE42I	14-21370	Water	10/08/14 09:55	10/10/14 12:15
10. MW-14	ZE42J	14-21371	Water	10/08/14 10:45	10/10/14 12:15
11. MW-5	ZE42K	14-21372	Water	10/08/14 11:40	10/10/14 12:15

Printed 10/10/14 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 $\geq$ 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 $\geq 40\%$ 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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-7

SAMPLE

Lab Sample ID: ZE42A

LIMS ID: 14-21362

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00176	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-7

DUPLICATE

Lab Sample ID: ZE42A

LIMS ID: 14-21362

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	0.00176	0.00181	2.8%	+/- 20%	

Reported in mg/L

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-7

MATRIX SPIKE

Lab Sample ID: ZE42A

LIMS ID: 14-21362

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	0.00176	0.00674	0.005	99.6%	

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%

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-6

SAMPLE

Lab Sample ID: ZE42B

LIMS ID: 14-21363

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00246	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-4

SAMPLE

Lab Sample ID: ZE42C

LIMS ID: 14-21364

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00188	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-1

SAMPLE

Lab Sample ID: ZE42D

LIMS ID: 14-21365

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00094	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-12I

SAMPLE

Lab Sample ID: ZE42E

LIMS ID: 14-21366

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00229	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-13D

SAMPLE

Lab Sample ID: ZE42F

LIMS ID: 14-21367

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00346	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-7

SAMPLE

Lab Sample ID: ZE42G

LIMS ID: 14-21368

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00106	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: ZE42H
LIMS ID: 14-21369
Matrix: Water
Data Release Authorized: 
Reported: 10/17/14

QC Report No: ZE42-Test America
Project: Hansville LF
04211017.03
Date Sampled: 10/08/14
Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00181	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

**Sample ID: MW-20DD
SAMPLE**

Lab Sample ID: ZE42I

LIMS ID: 14-21370

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.0002	0.0016	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

**Sample ID: MW-14
SAMPLE**

Lab Sample ID: ZE42J

LIMS ID: 14-21371

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.0002	0.0246	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-5

SAMPLE

Lab Sample ID: ZE42K

LIMS ID: 14-21372

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00194	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: ZE42MB

LIMS ID: 14-21363

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: NA

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00004	U

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: ZE42LCS

LIMS ID: 14-21363

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: NA

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	0.00489	0.00500	97.8%	

Reported in mg/L

N-Control limit not met

Control Limits: 80-120%

Phone (303) 736-0100 Fax (303) 431-7171

Chain of Cust



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-61044-1

Login Number: 61044

List Source: TestAmerica Denver

List Number: 1

Creator: Soto, Mayra A

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.	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.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-61044-1

Login Number: 61044

List Number: 2

Creator: Robison, Zachary J

List Source: TestAmerica Buffalo

List Creation: 10/15/14 05:59 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	4.9 C
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	

ANALYTICAL REPORT

Job Number: 280-60958-1

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
10/24/2014 12:54 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/24/2014

cc: Mr. Greg Helland
Mr. Charles Luckie

The test results in this report relate only to the samples in this report and meet all requirements of NELAP, 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.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com



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CASE NARRATIVE

Client: SCS Engineers

Project: Hansville Landfill

Report Number: 280-60958-1

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 10/09/2014; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 2.1° C and 5.1° C.

Holding Times

Due to a laboratory error, the trip blank sample was analyzed for Method 8260C SIM one day outside of the 14-day holding time.

All other 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)

Sample SW-1 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: 280-60958-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-60958-1	MW-13D					
Chloride		6.1		1.0	mg/L	300.0
Sulfate		17		1.0	mg/L	300.0
Total Alkalinity		84		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		84		5.0	mg/L	SM 2320B
<i>Dissolved</i>						
Manganese		29		1.0	ug/L	6020
280-60958-2	MW12-I					
Vinyl chloride		0.23		0.020	ug/L	8260C SIM
Chloride		3.5		1.0	mg/L	300.0
Sulfate		7.1		1.0	mg/L	300.0
Total Alkalinity		98		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		98		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.3		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		59		1.0	ug/L	6020
280-60958-3	SW-1					
Chloride		8.3		1.0	mg/L	300.0
Nitrate as N		3.1		0.50	mg/L	300.0
Sulfate		18		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		1.5		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		1.8		1.0	ug/L	6020
280-60958-4	SW-4					
Chloride		17		1.0	mg/L	300.0
Nitrate as N		1.1		0.50	mg/L	300.0
Sulfate		25		1.0	mg/L	300.0
Total Alkalinity		170		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		170		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		5.3		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		57		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers

Job Number: 280-60958-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-60958-5	SW-6					
Chloride		3.9		1.0	mg/L	300.0
Sulfate		14		1.0	mg/L	300.0
Total Alkalinity		39		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		39		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		19		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		67		1.0	ug/L	6020
280-60958-6	SW-7					
Chloride		3.7		1.0	mg/L	300.0
Sulfate		8.2		1.0	mg/L	300.0
Total Alkalinity		73		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		73		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		7.4		1.0	mg/L	SM 5310B
<i>Dissolved</i>						
Manganese		21		1.0	ug/L	6020

METHOD SUMMARY

Client: SCS Engineers

Job Number: 280-60958-1

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	
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: 280-60958-1

Method	Analyst	Analyst ID
SW846 8260C SIM	Cwiklinski, Charles D	CDC
SW846 8260C SIM	Sobol, Renee A	RAS
SW846 6020	Trudell, Lynn-Anne M	LMT
MCAWW 300.0	Wells, David A	DAW
MCAWW 350.1	Hoefler, Alexandra F	AFH
SM SM 2320B	Hoefler, Alexandra F	AFH
SM SM 5310B	Jewell, Connie C	CCJ

SAMPLE SUMMARY

Client: SCS Engineers

Job Number: 280-60958-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-60958-1	MW-13D	Water	10/08/2014 1240	10/09/2014 0945
280-60958-2	MW12-I	Water	10/08/2014 1145	10/09/2014 0945
280-60958-3	SW-1	Water	10/08/2014 1100	10/09/2014 0945
280-60958-4	SW-4	Water	10/08/2014 1015	10/09/2014 0945
280-60958-5	SW-6	Water	10/08/2014 0935	10/09/2014 0945
280-60958-6	SW-7	Water	10/08/2014 0900	10/09/2014 0945
280-60958-7TB	TRIPBLANK	Water	10/08/2014 0000	10/09/2014 0945

SAMPLE RESULTS

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: MW-13D

Lab Sample ID: 280-60958-1

Client Matrix: Water

Date Sampled: 10/08/2014 1240

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3123.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 0514			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 0514				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	96		50 - 150
TBA-d9 (Surr)	81		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: MW12-I

Lab Sample ID: 280-60958-2

Date Sampled: 10/08/2014 1145

Client Matrix: Water

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3157.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1948			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1948				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.23		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	98		50 - 150
TBA-d9 (Surr)	107		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-1

Lab Sample ID: 280-60958-3

Date Sampled: 10/08/2014 1100

Client Matrix: Water

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3125.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 0601			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 0601				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	96		50 - 150
TBA-d9 (Surr)	78		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-4

Lab Sample ID: 280-60958-4

Date Sampled: 10/08/2014 1015

Client Matrix: Water

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3126.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 0625			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 0625				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	98		50 - 150
TBA-d9 (Surr)	82		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-6

Lab Sample ID: 280-60958-5

Date Sampled: 10/08/2014 0935

Client Matrix: Water

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3127.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 0644			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 0644				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	96		50 - 150
TBA-d9 (Surr)	73		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-7

Lab Sample ID: 280-60958-6

Date Sampled: 10/08/2014 0900

Client Matrix: Water

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3158.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 2013			Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 2013				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	98		50 - 150
TBA-d9 (Surr)	110		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: TRIPBLANK

Lab Sample ID: 280-60958-7TB

Date Sampled: 10/08/2014 0000

Client Matrix: Water

Date Received: 10/09/2014 0945

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-209669	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J3282.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/23/2014 2342			Final Weight/Volume:	25 mL
Prep Date:	10/23/2014 2342				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	100		50 - 150
TBA-d9 (Surr)	135		50 - 150

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: MW-13D

Lab Sample ID: 280-60958-1

Date Sampled: 10/08/2014 1240

Client Matrix: Water

Date Received: 10/09/2014 0945

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-247730

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247262

Lab File ID: 184SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/14/2014 0234

Final Weight/Volume: 50 mL

Prep Date: 10/13/2014 1500

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

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: MW12-I

Lab Sample ID: 280-60958-2

Date Sampled: 10/08/2014 1145

Client Matrix: Water

Date Received: 10/09/2014 0945

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-247730

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247262

Lab File ID: 185SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/14/2014 0238

Final Weight/Volume: 50 mL

Prep Date: 10/13/2014 1500

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

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-1

Lab Sample ID: 280-60958-3

Date Sampled: 10/08/2014 1100

Client Matrix: Water

Date Received: 10/09/2014 0945

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-247730

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247262

Lab File ID: 192SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/14/2014 0303

Final Weight/Volume: 50 mL

Prep Date: 10/13/2014 1500

Analyte	Result (ug/L)	Qualifier	RL
Manganese	1.8		1.0

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-4

Lab Sample ID: 280-60958-4

Client Matrix: Water

Date Sampled: 10/08/2014 1015

Date Received: 10/09/2014 0945

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Prep Method: 3005A

Dilution: 1.0

Analysis Date: 10/14/2014 0307

Prep Date: 10/13/2014 1500

Analysis Batch: 280-247730

Prep Batch: 280-247262

Instrument ID: MT_077

Lab File ID: 193SMPL.d

Initial Weight/Volume: 50 mL

Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	RL
Manganese	57		1.0

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-6

Lab Sample ID: 280-60958-5

Date Sampled: 10/08/2014 0935

Client Matrix: Water

Date Received: 10/09/2014 0945

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-247730

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247262

Lab File ID: 194SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/14/2014 0311

Final Weight/Volume: 50 mL

Prep Date: 10/13/2014 1500

Analyte	Result (ug/L)	Qualifier	RL
Manganese	67		1.0

Analytical Data

Client: SCS Engineers

Job Number: 280-60958-1

Client Sample ID: SW-7

Lab Sample ID: 280-60958-6

Date Sampled: 10/08/2014 0900

Client Matrix: Water

Date Received: 10/09/2014 0945

6020 Metals (ICP/MS)-Dissolved

Analysis Method: 6020

Analysis Batch: 280-247730

Instrument ID: MT_077

Prep Method: 3005A

Prep Batch: 280-247262

Lab File ID: 195SMPL.d

Dilution: 1.0

Initial Weight/Volume: 50 mL

Analysis Date: 10/14/2014 0314

Final Weight/Volume: 50 mL

Prep Date: 10/13/2014 1500

Analyte	Result (ug/L)	Qualifier	RL
Manganese	21		1.0

Client: SCS Engineers

Job Number: 280-60958-1

General Chemistry

Client Sample ID: MW-13D

Lab Sample ID: 280-60958-1

Date Sampled: 10/08/2014 1240

Client Matrix: Water

Date Received: 10/09/2014 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	6.1		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1613				
Nitrate as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1613				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1613				
Sulfate	17		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1613				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1613				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-247441	Analysis Date: 10/10/2014 1958				
Total Alkalinity	84		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1946				
Bicarbonate Alkalinity	84		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1946				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1946				
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247501	Analysis Date: 10/10/2014 1728				

Client: SCS Engineers

Job Number: 280-60958-1

General Chemistry

Client Sample ID: MW12-I

Lab Sample ID: 280-60958-2

Date Sampled: 10/08/2014 1145

Client Matrix: Water

Date Received: 10/09/2014 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	3.5		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1715				
Nitrate as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1715				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1715				
Sulfate	7.1		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1715				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1715				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-247441	Analysis Date: 10/10/2014 2000				
Total Alkalinity	98		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1952				
Bicarbonate Alkalinity	98		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1952				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1952				
Total Organic Carbon - Average	2.3		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247501	Analysis Date: 10/10/2014 1812				

Client: SCS Engineers

Job Number: 280-60958-1

General Chemistry

Client Sample ID: SW-1

Lab Sample ID: 280-60958-3

Date Sampled: 10/08/2014 1100

Client Matrix: Water

Date Received: 10/09/2014 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	8.3		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1731				
Nitrate as N	3.1		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1731				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1731				
Sulfate	18		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1731				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1731				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-247441	Analysis Date: 10/10/2014 2049				
Total Alkalinity	100		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1956				
Bicarbonate Alkalinity	100		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1956				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247427	Analysis Date: 10/10/2014 1956				
Total Organic Carbon - Average	1.5		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247501	Analysis Date: 10/10/2014 1827				

Client: SCS Engineers

Job Number: 280-60958-1

General Chemistry

Client Sample ID: SW-4

Lab Sample ID: 280-60958-4

Date Sampled: 10/08/2014 1015

Client Matrix: Water

Date Received: 10/09/2014 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	17		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1746				
Nitrate as N	1.1		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1746				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1746				
Sulfate	25		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1746				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1746				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-247441	Analysis Date: 10/10/2014 2055				
Total Alkalinity	170		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1151				
Bicarbonate Alkalinity	170		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1151				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1151				
Total Organic Carbon - Average	5.3		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247501	Analysis Date: 10/10/2014 1841				

Client: SCS Engineers

Job Number: 280-60958-1

General Chemistry

Client Sample ID: SW-6

Lab Sample ID: 280-60958-5

Date Sampled: 10/08/2014 0935

Client Matrix: Water

Date Received: 10/09/2014 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	3.9		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1801				
Nitrate as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1801				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1801				
Sulfate	14		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1801				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1801				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-247441	Analysis Date: 10/10/2014 2057				
Total Alkalinity	39		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1215				
Bicarbonate Alkalinity	39		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1215				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1215				
Total Organic Carbon - Average	19		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247501	Analysis Date: 10/10/2014 1856				

Client: SCS Engineers

Job Number: 280-60958-1

General Chemistry

Client Sample ID: SW-7

Lab Sample ID: 280-60958-6

Date Sampled: 10/08/2014 0900

Client Matrix: Water

Date Received: 10/09/2014 0945

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	3.7		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1817				
Nitrate as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1817				
Nitrite as N	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1817				
Sulfate	8.2		mg/L	1.0	1.0	300.0
	Analysis Batch: 280-247079	Analysis Date: 10/09/2014 1817				
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-247078	Analysis Date: 10/09/2014 1817				
Ammonia as N	ND		mg/L	0.030	1.0	350.1
	Analysis Batch: 280-247441	Analysis Date: 10/10/2014 2059				
Total Alkalinity	73		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1220				
Bicarbonate Alkalinity	73		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1220				
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-247846	Analysis Date: 10/14/2014 1220				
Total Organic Carbon - Average	7.4		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-247501	Analysis Date: 10/10/2014 1911				

DATA REPORTING QUALIFIERS

Client: SCS Engineers

Job Number: 280-60958-1

Lab Section	Qualifier	Description
GC/MS VOA	H	Sample was prepped or analyzed beyond the specified holding time
General Chemistry	F1	MS and/or MSD Recovery exceeds the control limits

QUALITY CONTROL RESULTS

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:480-208273					
LCS 480-208273/4	Lab Control Sample	T	Water	8260C SIM	
LCSD 480-208273/5	Lab Control Sample Duplicate	T	Water	8260C SIM	
MB 480-208273/7	Method Blank	T	Water	8260C SIM	
280-60958-1	MW-13D	T	Water	8260C SIM	
280-60958-3	SW-1	T	Water	8260C SIM	
280-60958-4	SW-4	T	Water	8260C SIM	
280-60958-5	SW-6	T	Water	8260C SIM	
480-68733-F-6 MS	Matrix Spike	T	Water	8260C SIM	
480-68733-F-6 MSD	Matrix Spike Duplicate	T	Water	8260C SIM	
Analysis Batch:480-208474					
LCS 480-208474/3	Lab Control Sample	T	Water	8260C SIM	
LCSD 480-208474/4	Lab Control Sample Duplicate	T	Water	8260C SIM	
MB 480-208474/6	Method Blank	T	Water	8260C SIM	
280-60958-2	MW12-I	T	Water	8260C SIM	
280-60958-6	SW-7	T	Water	8260C SIM	
480-68845-B-2 MS	Matrix Spike	T	Water	8260C SIM	
480-68845-B-2 MSD	Matrix Spike Duplicate	T	Water	8260C SIM	
Analysis Batch:480-209669					
LCS 480-209669/13	Lab Control Sample	T	Water	8260C SIM	
LCSD 480-209669/14	Lab Control Sample Duplicate	T	Water	8260C SIM	
MB 480-209669/15	Method Blank	T	Water	8260C SIM	
280-60958-7TB	TRIPBLANK	T	Water	8260C SIM	

Report Basis

T = Total

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-247262					
LCS 280-247262/2-A	Lab Control Sample	R	Water	3005A	
MB 280-247262/1-A	Method Blank	R	Water	3005A	
280-60958-1	MW-13D	D	Water	3005A	
280-60958-2	MW12-I	D	Water	3005A	
280-60958-2MS	Matrix Spike	D	Water	3005A	
280-60958-2MSD	Matrix Spike Duplicate	D	Water	3005A	
280-60958-3	SW-1	D	Water	3005A	
280-60958-4	SW-4	D	Water	3005A	
280-60958-5	SW-6	D	Water	3005A	
280-60958-6	SW-7	D	Water	3005A	
Analysis Batch:280-247730					
LCS 280-247262/2-A	Lab Control Sample	R	Water	6020	280-247262
MB 280-247262/1-A	Method Blank	R	Water	6020	280-247262
280-60958-1	MW-13D	D	Water	6020	280-247262
280-60958-2	MW12-I	D	Water	6020	280-247262
280-60958-2MS	Matrix Spike	D	Water	6020	280-247262
280-60958-2MSD	Matrix Spike Duplicate	D	Water	6020	280-247262
280-60958-3	SW-1	D	Water	6020	280-247262
280-60958-4	SW-4	D	Water	6020	280-247262
280-60958-5	SW-6	D	Water	6020	280-247262
280-60958-6	SW-7	D	Water	6020	280-247262

Report Basis

D = Dissolved

R = Total Recoverable

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-247078					
LCS 280-247078/4	Lab Control Sample	T	Water	300.0	
LCSD 280-247078/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-247078/6	Method Blank	T	Water	300.0	
280-60958-1	MW-13D	T	Water	300.0	
280-60958-1DU	Duplicate	T	Water	300.0	
280-60958-1MS	Matrix Spike	T	Water	300.0	
280-60958-1MSD	Matrix Spike Duplicate	T	Water	300.0	
280-60958-2	MW12-I	T	Water	300.0	
280-60958-3	SW-1	T	Water	300.0	
280-60958-4	SW-4	T	Water	300.0	
280-60958-5	SW-6	T	Water	300.0	
280-60958-6	SW-7	T	Water	300.0	
Analysis Batch:280-247079					
LCS 280-247079/4	Lab Control Sample	T	Water	300.0	
LCSD 280-247079/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-247079/6	Method Blank	T	Water	300.0	
280-60958-1	MW-13D	T	Water	300.0	
280-60958-1DU	Duplicate	T	Water	300.0	
280-60958-1MS	Matrix Spike	T	Water	300.0	
280-60958-1MSD	Matrix Spike Duplicate	T	Water	300.0	
280-60958-2	MW12-I	T	Water	300.0	
280-60958-3	SW-1	T	Water	300.0	
280-60958-4	SW-4	T	Water	300.0	
280-60958-5	SW-6	T	Water	300.0	
280-60958-6	SW-7	T	Water	300.0	
Analysis Batch:280-247427					
LCS 280-247427/58	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-247427/59	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-247427/60	Method Blank	T	Water	SM 2320B	
280-60958-1	MW-13D	T	Water	SM 2320B	
280-60958-2	MW12-I	T	Water	SM 2320B	
280-60958-3	SW-1	T	Water	SM 2320B	
280-60977-A-3 DU	Duplicate	T	Water	SM 2320B	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-247441					
LCS 280-247441/104	Lab Control Sample	T	Water	350.1	
LCS 280-247441/145	Lab Control Sample	T	Water	350.1	
LCSD 280-247441/105	Lab Control Sample Duplicate	T	Water	350.1	
LCSD 280-247441/146	Lab Control Sample Duplicate	T	Water	350.1	
MB 280-247441/106	Method Blank	T	Water	350.1	
MB 280-247441/147	Method Blank	T	Water	350.1	
280-60958-1	MW-13D	T	Water	350.1	
280-60958-2	MW12-I	T	Water	350.1	
280-60958-3	SW-1	T	Water	350.1	
280-60958-3MS	Matrix Spike	T	Water	350.1	
280-60958-3MSD	Matrix Spike Duplicate	T	Water	350.1	
280-60958-4	SW-4	T	Water	350.1	
280-60958-5	SW-6	T	Water	350.1	
280-60958-6	SW-7	T	Water	350.1	
Analysis Batch:280-247501					
LCS 280-247501/3	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-247501/4	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-247501/5	Method Blank	T	Water	SM 5310B	
280-60958-1	MW-13D	T	Water	SM 5310B	
280-60958-2	MW12-I	T	Water	SM 5310B	
280-60958-3	SW-1	T	Water	SM 5310B	
280-60958-4	SW-4	T	Water	SM 5310B	
280-60958-5	SW-6	T	Water	SM 5310B	
280-60958-6	SW-7	T	Water	SM 5310B	
280-60958-6MS	Matrix Spike	T	Water	SM 5310B	
280-60958-6MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
Analysis Batch:280-247502					
LCS 280-247502/3	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-247502/4	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-247502/5	Method Blank	T	Water	SM 5310B	
280-60958-1	MW-13D	T	Water	SM 5310B	
280-60958-2	MW12-I	T	Water	SM 5310B	
280-60958-3	SW-1	T	Water	SM 5310B	
280-60958-4	SW-4	T	Water	SM 5310B	
280-60958-5	SW-6	T	Water	SM 5310B	
280-60958-6	SW-7	T	Water	SM 5310B	
280-60958-6MS	Matrix Spike	T	Water	SM 5310B	
280-60958-6MSD	Matrix Spike Duplicate	T	Water	SM 5310B	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-247846					
LCS 280-247846/31	Lab Control Sample	T	Water	SM 2320B	
LCS 280-247846/4	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-247846/32	Lab Control Sample Duplicate	T	Water	SM 2320B	
LCSD 280-247846/5	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-247846/33	Method Blank	T	Water	SM 2320B	
MB 280-247846/6	Method Blank	T	Water	SM 2320B	
280-60958-4	SW-4	T	Water	SM 2320B	
280-60958-5	SW-6	T	Water	SM 2320B	
280-60958-6	SW-7	T	Water	SM 2320B	
280-60990-D-3 DU	Duplicate	T	Water	SM 2320B	

Report Basis

T = Total

Client: SCS Engineers

Job Number: 280-60958-1

Surrogate Recovery Report**8260C SIM Volatile Organic Compounds (GC/MS)****Client Matrix: Water**

Lab Sample ID	Client Sample ID	DBFM %Rec	TBA %Rec
280-60958-1	MW-13D	96	81
280-60958-2	MW12-I	98	107
280-60958-3	SW-1	96	78
280-60958-4	SW-4	98	82
280-60958-5	SW-6	96	73
280-60958-6	SW-7	98	110
280-60958-7	TRIPBLANK	100	135
MB 480-208273/7		96	78
MB 480-208474/6		98	107
MB 480-209669/15		103	124
LCS 480-208273/4		102	72
LCS 480-208474/3		102	110
LCS 480-209669/13		99	98
LCSD 480-208273/5		101	79
LCSD 480-208474/4		102	107
LCSD 480-209669/14		99	98
480-68733-F-6 MS		102	77
480-68845-B-2 MS		104	120
480-68733-F-6 MSD		101	78
480-68845-B-2 MSD		103	131

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

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 480-208273

Method: 8260C SIM
Preparation: 5030C

Lab Sample ID:	MB 480-208273/7	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3112.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 0048	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 0048				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020
Surrogate	% Rec	Acceptance Limits	
Dibromofluoromethane (Surr)	96	50 - 150	
TBA-d9 (Surr)	78	50 - 150	

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 480-208273

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-208273/4	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3109.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/16/2014 2341	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/16/2014 2341				25 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-208273/5	Analysis Batch:	480-208273	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3110.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 0005	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 0005				25 mL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Vinyl chloride	133	134	50 - 150	1	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Dibromofluoromethane (Surr)	102		101		50 - 150		
TBA-d9 (Surr)	72		79		50 - 150		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 480-208273**

**Method: 8260C SIM
Preparation: 5030C**

LCS Lab Sample ID: LCS 480-208273/4 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/16/2014 2341
Prep Date: 10/16/2014 2341
Leach Date: N/A

LCSD Lab Sample ID: LCSD 480-208273/5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/17/2014 0005
Prep Date: 10/17/2014 0005
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.200	0.200	0.265	0.269

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Dibromofluoromethane (Surr)	102	101	50 - 150
TBA-d9 (Surr)	77	78	50 - 150

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

Lab Sample ID:	MB 480-208474/6	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3153.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1754	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1754				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020
Surrogate	% Rec	Acceptance Limits	
Dibromofluoromethane (Surr)	98	50 - 150	
TBA-d9 (Surr)	107	50 - 150	

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-208474/3	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3150.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1644	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1644				25 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-208474/4	Analysis Batch:	480-208474	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3151.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/17/2014 1707	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/17/2014 1707				25 mL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Vinyl chloride	114	113	50 - 150	1	20		
Surrogate	LCS % Rec		LCSD % Rec	Acceptance Limits			
Dibromofluoromethane (Surr)	102		102	50 - 150			
TBA-d9 (Surr)	110		107	50 - 150			

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID: LCS 480-208474/3 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/17/2014 1644
Prep Date: 10/17/2014 1644
Leach Date: N/A

LCSD Lab Sample ID: LCSD 480-208474/4
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/17/2014 1707
Prep Date: 10/17/2014 1707
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.200	0.200	0.228	0.226

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

MS Lab Sample ID: 480-68845-B-2 MS
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0106
Prep Date: 10/18/2014 0106
Leach Date: N/A

Analysis Batch: 480-208474
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: HP5973J
Lab File ID: J3170.D
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

MSD Lab Sample ID: 480-68845-B-2 MSD
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0130
Prep Date: 10/18/2014 0130
Leach Date: N/A

Analysis Batch: 480-208474
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: HP5973J
Lab File ID: J3171.D
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Vinyl chloride	81	67	50 - 150	4	20		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
Dibromofluoromethane (Surr)		104	103			50 - 150	
TBA-d9 (Surr)		120	131			50 - 150	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 480-208474

Method: 8260C SIM
Preparation: 5030C

MS Lab Sample ID: 480-68845-B-2 MS Units: ug/L
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0106
Prep Date: 10/18/2014 0106
Leach Date: N/A

MSD Lab Sample ID: 480-68845-B-2 MSD
Client Matrix: Water
Dilution: 50
Analysis Date: 10/18/2014 0130
Prep Date: 10/18/2014 0130
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Vinyl chloride	28	10.0	10.0	36.4	35.0

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 480-209669

Method: 8260C SIM Preparation: 5030C

Lab Sample ID:	MB 480-209669/15	Analysis Batch:	480-209669	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3281.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/23/2014 2314	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/23/2014 2314				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020
Surrogate	% Rec	Acceptance Limits	
Dibromofluoromethane (Surr)	103	50 - 150	
TBA-d9 (Surr)	124	50 - 150	

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 480-209669

Method: 8260C SIM Preparation: 5030C

LCS Lab Sample ID:	LCS 480-209669/13	Analysis Batch:	480-209669	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3280.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/23/2014 2251	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/23/2014 2251				25 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-209669/14	Analysis Batch:	480-209669	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J3283.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/24/2014 0006	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/24/2014 0006				25 mL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Vinyl chloride	116	116	50 - 150	0	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Dibromofluoromethane (Surr)	99		99		50 - 150		
TBA-d9 (Surr)	98		98		50 - 150		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 480-209669**

**Method: 8260C SIM
Preparation: 5030C**

LCS Lab Sample ID: LCS 480-209669/13 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/23/2014 2251
Prep Date: 10/23/2014 2251
Leach Date: N/A

LCSD Lab Sample ID: LCSD 480-209669/14
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/24/2014 0006
Prep Date: 10/24/2014 0006
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.200	0.200	0.233	0.232

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247262

Lab Sample ID: MB 280-247262/1-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 0227
Prep Date: 10/13/2014 1500
Leach Date: N/A

Analysis Batch: 280-247730
Prep Batch: 280-247262
Leach Batch: N/A
Units: ug/L

Method: 6020 Preparation: 3005A Total Recoverable

Instrument ID: MT_077
Lab File ID: 182_BLK.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Manganese	ND		1.0

Lab Control Sample - Batch: 280-247262

Lab Sample ID: LCS 280-247262/2-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 0230
Prep Date: 10/13/2014 1500
Leach Date: N/A

Analysis Batch: 280-247730
Prep Batch: 280-247262
Leach Batch: N/A
Units: ug/L

Method: 6020 Preparation: 3005A Total Recoverable

Instrument ID: MT_077
Lab File ID: 183_LCS.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Manganese	40.0	41.1	103	85 - 117	

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-247262

Method: 6020 Preparation: 3005A Dissolved

MS Lab Sample ID: 280-60958-2
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 0245
Prep Date: 10/13/2014 1500
Leach Date: N/A

Analysis Batch: 280-247730
Prep Batch: 280-247262
Leach Batch: N/A

Instrument ID: MT_077
Lab File ID: 187SMPL.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 280-60958-2
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 0249
Prep Date: 10/13/2014 1500
Leach Date: N/A

Analysis Batch: 280-247730
Prep Batch: 280-247262
Leach Batch: N/A

Instrument ID: MT_077
Lab File ID: 188SMPL.d
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Manganese	109	110	85 - 117	1	20		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247262

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID: 280-60958-2 Units: ug/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 0245
Prep Date: 10/13/2014 1500
Leach Date: N/A

MSD Lab Sample ID: 280-60958-2
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 0249
Prep Date: 10/13/2014 1500
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Manganese	59	40.0	40.0	103	103

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247078

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-247078/6	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1221	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Nitrate as N	ND		0.50
Nitrite as N	ND		0.50
Orthophosphate as P	ND		0.50

Method Reporting Limit Check - Batch: 280-247078

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-247078/3	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1135	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N	0.200	ND	87	50 - 150	
Nitrite as N	0.200	ND	102	50 - 150	
Orthophosphate as P	0.200	ND	129	50 - 150	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247078**

**Method: 300.0
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247078/4	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1150	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247078/5	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1206	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Nitrate as N	103	101	90 - 110	2	10		
Nitrite as N	104	104	90 - 110	1	10		
Orthophosphate as P	107	104	90 - 110	3	10		

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-247078**

**Method: 300.0
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247078/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-247078/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/09/2014 1150			Analysis Date:	10/09/2014 1206
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 as N	5.00	5.00	5.17	5.05
Nitrite as N	5.00	5.00	5.22	5.18
Orthophosphate as P	5.00	5.00	5.36	5.22

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247078**

**Method: 300.0
Preparation: N/A**

MS Lab Sample ID:	280-60958-1	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1644			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-60958-1	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1700			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Nitrate as N	99	99	80 - 120	1	20		
Nitrite as N	96	97	80 - 120	1	20		
Orthophosphate as P	100	102	80 - 120	1	20		

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247078**

**Method: 300.0
Preparation: N/A**

MS Lab Sample ID:	280-60958-1	Units:	mg/L	MSD Lab Sample ID:	280-60958-1
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/09/2014 1644			Analysis Date:	10/09/2014 1700
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 as N	ND	5.00	5.00	4.93	4.97
Nitrite as N	ND	5.00	5.00	4.80	4.84
Orthophosphate as P	ND	5.00	5.00	5.02	5.08

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Duplicate - Batch: 280-247078

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-60958-1	Analysis Batch:	280-247078	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1629	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	ND	ND	NC	15	
Nitrite as N	ND	ND	NC	15	
Orthophosphate as P	ND	ND	NC	15	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247079

Method: 300.0

Preparation: N/A

Lab Sample ID:	MB 280-247079/6	Analysis Batch:	280-247079	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1221	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: 280-247079

Method: 300.0

Preparation: N/A

Lab Sample ID:	MRL 280-247079/3	Analysis Batch:	280-247079	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1135	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	94	50 - 150	
Sulfate	2.50	ND	95	50 - 150	

Lab Control Sample/

Method: 300.0

Lab Control Sample Duplicate Recovery Report - Batch: 280-247079

Preparation: N/A

LCS Lab Sample ID:	LCS 280-247079/4	Analysis Batch:	280-247079	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1150	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247079/5	Analysis Batch:	280-247079	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anions
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/09/2014 1206	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

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

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247079

Method: 300.0
Preparation: N/A

LCS Lab Sample ID: LCS 280-247079/4 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1150
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247079/5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1206
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Chloride	100	100	99.9	99.9
Sulfate	100	100	101	101

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-247079

Method: 300.0
Preparation: N/A

MS Lab Sample ID: 280-60958-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1644
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247079
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: WC_IonChrom10
Lab File ID: Info 2_DENPC179_Anions
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
5 uL

MSD Lab Sample ID: 280-60958-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1700
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247079
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: WC_IonChrom10
Lab File ID: Info 2_DENPC179_Anions
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
5 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Chloride	104	104	80 - 120	0	20		
Sulfate	108	108	80 - 120	0	20		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-247079

Method: 300.0
Preparation: N/A

MS Lab Sample ID: 280-60958-1 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1644
Prep Date: N/A
Leach Date: N/A

MSD Lab Sample ID: 280-60958-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1700
Prep Date: N/A
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	6.1	25.0	25.0	32.0	32.0
Sulfate	17	25.0	25.0	44.0	43.9

Duplicate - Batch: 280-247079

Method: 300.0
Preparation: N/A

Lab Sample ID: 280-60958-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/09/2014 1629
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247079
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_IonChrom10
Lab File ID: Info 2_DENPC179_Anions
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
5 uL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	6.1	6.10	0.4	15	
Sulfate	17	17.3	3	15	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247441

Method: 350.1 Preparation: N/A

Lab Sample ID: MB 280-247441/106
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1844
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247441
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_Alp 3
Lab File ID: E:\FLOW_4\101014.RST
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Method Blank - Batch: 280-247441

Method: 350.1 Preparation: N/A

Lab Sample ID: MB 280-247441/147
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 2006
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247441
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_Alp 3
Lab File ID: E:\FLOW_4\101014.RST
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247441**

**Method: 350.1
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247441/104	Analysis Batch:	280-247441	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101014.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/10/2014 1840	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247441/105	Analysis Batch:	280-247441	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101014.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/10/2014 1842	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Ammonia as N	104	104	90 - 110	0	10		

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247441**

**Method: 350.1
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247441/145	Analysis Batch:	280-247441	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101014.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/10/2014 2002	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247441/146	Analysis Batch:	280-247441	Instrument ID:	WC_Alpha 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101014.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/10/2014 2004	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Ammonia as N	101	97	90 - 110	3	10		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247441

Method: 350.1
Preparation: N/A

LCS Lab Sample ID: LCS 280-247441/104 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1840
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247441/105
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1842
Prep 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	2.60	2.59

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247441

Method: 350.1
Preparation: N/A

LCS Lab Sample ID: LCS 280-247441/145 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 2002
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247441/146
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 2004
Prep 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	2.52	2.44

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247441**

**Method: 350.1
Preparation: N/A**

MS Lab Sample ID:	280-60958-3	Analysis Batch:	280-247441	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101014.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/10/2014 2051			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-60958-3	Analysis Batch:	280-247441	Instrument ID:	WC_Alph 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\101014.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/10/2014 2053			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Ammonia as N	113	114	90 - 110	1	10	F1	F1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247441**

**Method: 350.1
Preparation: N/A**

MS Lab Sample ID:	280-60958-3	Units:	mg/L	MSD Lab Sample ID:	280-60958-3
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/10/2014 2051			Analysis Date:	10/10/2014 2053
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	1.13 F1	1.14 F1

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247427

Method: SM 2320B

Preparation: N/A

Lab Sample ID: MB 280-247427/60
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1910
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247427
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101014.TXT
Initial Weight/Volume:
Final Weight/Volume:

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

Lab Control Sample/

Method: SM 2320B

Lab Control Sample Duplicate Recovery Report - Batch: 280-247427

Preparation: N/A

LCS Lab Sample ID: LCS 280-247427/58
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1901
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247427
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101014.TXT
Initial Weight/Volume:
Final Weight/Volume:

LCSD Lab Sample ID: LCSD 280-247427/59
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1906
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247427
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101014.TXT
Initial Weight/Volume:
Final Weight/Volume:

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Alkalinity	96	97	90 - 110	1	10		

Laboratory Control/

Method: SM 2320B

Laboratory Duplicate Data Report - Batch: 280-247427

Preparation: N/A

LCS Lab Sample ID: LCS 280-247427/58
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1901
Prep Date: N/A
Leach Date: N/A

Units: mg/L

LCSD Lab Sample ID: LCSD 280-247427/59
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/10/2014 1906
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Alkalinity	200	200	192	194

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Duplicate - Batch: 280-247427

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-60977-A-3 DU	Analysis Batch:	280-247427	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101014.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2014 1920	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	500	507	1	10	

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247846

Method: SM 2320B

Preparation: N/A

Lab Sample ID: MB 280-247846/6
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1046
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247846
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101414a.TXT
Initial Weight/Volume:
Final Weight/Volume:

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

Method Blank - Batch: 280-247846

Method: SM 2320B

Preparation: N/A

Lab Sample ID: MB 280-247846/33
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1252
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-247846
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC-AT3
Lab File ID: 101414a.TXT
Initial Weight/Volume:
Final Weight/Volume:

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

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247846**

**Method: SM 2320B
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247846/4	Analysis Batch:	280-247846	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 1037	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247846/5	Analysis Batch:	280-247846	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 1042	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Alkalinity	92	94	90 - 110	2	10		

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-247846**

**Method: SM 2320B
Preparation: N/A**

LCS Lab Sample ID:	LCS 280-247846/31	Analysis Batch:	280-247846	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 1243	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247846/32	Analysis Batch:	280-247846	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101414a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/14/2014 1248	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Alkalinity	93	93	90 - 110	1	10		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247846

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID: LCS 280-247846/4 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1037
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247846/5
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1042
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Alkalinity	200	200	184	188

Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-247846

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID: LCS 280-247846/31 Units: mg/L
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1243
Prep Date: N/A
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-247846/32
Client Matrix: Water
Dilution: 1.0
Analysis Date: 10/14/2014 1248
Prep Date: N/A
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Alkalinity	200	200	186	187

Duplicate - Batch: 280-247846

Method: SM 2320B
Preparation: N/A

Lab Sample ID: 280-60990-D-3 DU Analysis Batch: 280-247846
Client Matrix: Water Prep Batch: N/A
Dilution: 1.0 Leach Batch: N/A
Analysis Date: 10/14/2014 1300 Units: mg/L
Prep Date: N/A
Leach Date: N/A

Instrument ID: WC-AT3
Lab File ID: 101414a.TXT
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	170	174	1	10	
Bicarbonate Alkalinity	150	144	2		
Carbonate Alkalinity	25	29.5	18		

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Method Blank - Batch: 280-247501

Method: SM 5310B

Preparation: N/A

Lab Sample ID:	MB 280-247501/5	Analysis Batch:	280-247501	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101014.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2014 1449	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/

Method: SM 5310B

Lab Control Sample Duplicate Recovery Report - Batch: 280-247501

Preparation: N/A

LCS Lab Sample ID:	LCS 280-247501/3	Analysis Batch:	280-247501	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101014.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2014 1418	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-247501/4	Analysis Batch:	280-247501	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101014.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2014 1432	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Total Organic Carbon - Average	99	99	88 - 112	0	15		

Laboratory Control/

Method: SM 5310B

Laboratory Duplicate Data Report - Batch: 280-247501

Preparation: N/A

LCS Lab Sample ID:	LCS 280-247501/3	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-247501/4
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/10/2014 1418			Analysis Date:	10/10/2014 1432
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
Total Organic Carbon - Average	25.0	25.0	24.7	24.8

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247501**

**Method: SM 5310B
Preparation: N/A**

MS Lab Sample ID:	280-60958-6	Analysis Batch:	280-247501	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101014.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2014 1925			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-60958-6	Analysis Batch:	280-247501	Instrument ID:	WC_SHI3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101014.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2014 1940			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Total Organic Carbon - Average	99	99	88 - 112	0	15		

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-247501**

**Method: SM 5310B
Preparation: N/A**

MS Lab Sample ID:	280-60958-6	Units:	mg/L	MSD Lab Sample ID:	280-60958-6
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/10/2014 1925			Analysis Date:	10/10/2014 1940
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	7.4	25.0	25.0	32.3	32.2

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Chronicle

Lab ID: 280-60958-1

Client ID: MW-13D

Sample Date/Time: 10/08/2014 12:40

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-G-1		480-208273		10/17/2014 05:14	1	TAL BUF	RAS
A:8260C SIM	280-60958-G-1		480-208273		10/17/2014 05:14	1	TAL BUF	RAS
P:3005A	280-60958-D-1-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-1-A		280-247730	280-247262	10/14/2014 02:34	1	TAL DEN	LMT
A:300.0	280-60958-A-1		280-247078		10/09/2014 16:13	1	TAL DEN	DAW
A:300.0	280-60958-A-1		280-247079		10/09/2014 16:13	1	TAL DEN	DAW
A:350.1	280-60958-B-1		280-247441		10/10/2014 19:58	1	TAL DEN	AFH
A:SM 2320B	280-60958-A-1		280-247427		10/10/2014 19:46	1	TAL DEN	AFH
A:SM 5310B	280-60958-C-1		280-247501		10/10/2014 17:28	1	TAL DEN	CCJ

Lab ID: 280-60958-1 MS

Client ID: MW-13D

Sample Date/Time: 10/08/2014 12:40

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-60958-A-1 MS		280-247078		10/09/2014 16:44	1	TAL DEN	DAW
A:300.0	280-60958-A-1 MS		280-247079		10/09/2014 16:44	1	TAL DEN	DAW

Lab ID: 280-60958-1 MSD

Client ID: MW-13D

Sample Date/Time: 10/08/2014 12:40

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-60958-A-1 MSD		280-247078		10/09/2014 17:00	1	TAL DEN	DAW
A:300.0	280-60958-A-1 MSD		280-247079		10/09/2014 17:00	1	TAL DEN	DAW

Lab ID: 280-60958-1 DU

Client ID: MW-13D

Sample Date/Time: 10/08/2014 12:40

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-60958-A-1 DU		280-247078		10/09/2014 16:29	1	TAL DEN	DAW
A:300.0	280-60958-A-1 DU		280-247079		10/09/2014 16:29	1	TAL DEN	DAW

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Chronicle

Lab ID: 280-60958-2

Client ID: MW12-I

Sample Date/Time: 10/08/2014 11:45

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-H-2		480-208474		10/17/2014 19:48	1	TAL BUF	RAS
A:8260C SIM	280-60958-H-2		480-208474		10/17/2014 19:48	1	TAL BUF	RAS
P:3005A	280-60958-D-2-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-2-A		280-247730	280-247262	10/14/2014 02:38	1	TAL DEN	LMT
A:300.0	280-60958-A-2		280-247078		10/09/2014 17:15	1	TAL DEN	DAW
A:300.0	280-60958-A-2		280-247079		10/09/2014 17:15	1	TAL DEN	DAW
A:350.1	280-60958-B-2		280-247441		10/10/2014 20:00	1	TAL DEN	AFH
A:SM 2320B	280-60958-A-2		280-247427		10/10/2014 19:52	1	TAL DEN	AFH
A:SM 5310B	280-60958-C-2		280-247501		10/10/2014 18:12	1	TAL DEN	CCJ

Lab ID: 280-60958-2 MS

Client ID: MW12-I

Sample Date/Time: 10/08/2014 11:45

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-60958-D-2-B MS		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-2-B MS		280-247730	280-247262	10/14/2014 02:45	1	TAL DEN	LMT

Lab ID: 280-60958-2 MSD

Client ID: MW12-I

Sample Date/Time: 10/08/2014 11:45

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-60958-D-2-C MSD		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-2-C MSD		280-247730	280-247262	10/14/2014 02:49	1	TAL DEN	LMT

Lab ID: 280-60958-3

Client ID: SW-1

Sample Date/Time: 10/08/2014 11:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-G-3		480-208273		10/17/2014 06:01	1	TAL BUF	RAS
A:8260C SIM	280-60958-G-3		480-208273		10/17/2014 06:01	1	TAL BUF	RAS
P:3005A	280-60958-D-3-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-3-A		280-247730	280-247262	10/14/2014 03:03	1	TAL DEN	LMT
A:300.0	280-60958-A-3		280-247078		10/09/2014 17:31	1	TAL DEN	DAW
A:300.0	280-60958-A-3		280-247079		10/09/2014 17:31	1	TAL DEN	DAW
A:350.1	280-60958-B-3		280-247441		10/10/2014 20:49	1	TAL DEN	AFH
A:SM 2320B	280-60958-A-3		280-247427		10/10/2014 19:56	1	TAL DEN	AFH
A:SM 5310B	280-60958-C-3		280-247501		10/10/2014 18:27	1	TAL DEN	CCJ

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Chronicle

Lab ID: 280-60958-3 MS

Client ID: SW-1

Sample Date/Time: 10/08/2014 11:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-60958-B-3 MS		280-247441		10/10/2014 20:51	1	TAL DEN	AFH

Lab ID: 280-60958-3 MSD

Client ID: SW-1

Sample Date/Time: 10/08/2014 11:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-60958-B-3 MSD		280-247441		10/10/2014 20:53	1	TAL DEN	AFH

Lab ID: 280-60958-4

Client ID: SW-4

Sample Date/Time: 10/08/2014 10:15

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-G-4		480-208273		10/17/2014 06:25	1	TAL BUF	RAS
A:8260C SIM	280-60958-G-4		480-208273		10/17/2014 06:25	1	TAL BUF	RAS
P:3005A	280-60958-D-4-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-4-A		280-247730	280-247262	10/14/2014 03:07	1	TAL DEN	LMT
A:300.0	280-60958-A-4		280-247078		10/09/2014 17:46	1	TAL DEN	DAW
A:300.0	280-60958-A-4		280-247079		10/09/2014 17:46	1	TAL DEN	DAW
A:350.1	280-60958-B-4		280-247441		10/10/2014 20:55	1	TAL DEN	AFH
A:SM 2320B	280-60958-A-4		280-247846		10/14/2014 11:51	1	TAL DEN	AFH
A:SM 5310B	280-60958-C-4		280-247501		10/10/2014 18:41	1	TAL DEN	CCJ

Lab ID: 280-60958-5

Client ID: SW-6

Sample Date/Time: 10/08/2014 09:35

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-G-5		480-208273		10/17/2014 06:44	1	TAL BUF	RAS
A:8260C SIM	280-60958-G-5		480-208273		10/17/2014 06:44	1	TAL BUF	RAS
P:3005A	280-60958-D-5-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-5-A		280-247730	280-247262	10/14/2014 03:11	1	TAL DEN	LMT
A:300.0	280-60958-A-5		280-247078		10/09/2014 18:01	1	TAL DEN	DAW
A:300.0	280-60958-A-5		280-247079		10/09/2014 18:01	1	TAL DEN	DAW
A:350.1	280-60958-B-5		280-247441		10/10/2014 20:57	1	TAL DEN	AFH
A:SM 2320B	280-60958-A-5		280-247846		10/14/2014 12:15	1	TAL DEN	AFH
A:SM 5310B	280-60958-C-5		280-247501		10/10/2014 18:56	1	TAL DEN	CCJ

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Chronicle

Lab ID: 280-60958-6

Client ID: SW-7

Sample Date/Time: 10/08/2014 09:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-H-6		480-208474		10/17/2014 20:13	1	TAL BUF	RAS
A:8260C SIM	280-60958-H-6		480-208474		10/17/2014 20:13	1	TAL BUF	RAS
P:3005A	280-60958-D-6-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	280-60958-D-6-A		280-247730	280-247262	10/14/2014 03:14	1	TAL DEN	LMT
A:300.0	280-60958-A-6		280-247078		10/09/2014 18:17	1	TAL DEN	DAW
A:300.0	280-60958-A-6		280-247079		10/09/2014 18:17	1	TAL DEN	DAW
A:350.1	280-60958-B-6		280-247441		10/10/2014 20:59	1	TAL DEN	AFH
A:SM 2320B	280-60958-A-6		280-247846		10/14/2014 12:20	1	TAL DEN	AFH
A:SM 5310B	280-60958-C-6		280-247501		10/10/2014 19:11	1	TAL DEN	CCJ

Lab ID: 280-60958-6 MS

Client ID: SW-7

Sample Date/Time: 10/08/2014 09:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-60958-C-6 MS		280-247501		10/10/2014 19:25	1	TAL DEN	CCJ

Lab ID: 280-60958-6 MSD

Client ID: SW-7

Sample Date/Time: 10/08/2014 09:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-60958-C-6 MSD		280-247501		10/10/2014 19:40	1	TAL DEN	CCJ

Lab ID: 280-60958-7

Client ID: TRIPBLANK

Sample Date/Time: 10/08/2014 00:00

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-60958-A-7		480-209669		10/23/2014 23:42	1	TAL BUF	CDC
A:8260C SIM	280-60958-A-7		480-209669		10/23/2014 23:42	1	TAL BUF	CDC

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Chronicle

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 480-208273/7		480-208273		10/17/2014 00:48	1	TAL BUF	RAS
A:8260C SIM	MB 480-208273/7		480-208273		10/17/2014 00:48	1	TAL BUF	RAS
P:5030C	MB 480-208474/6		480-208474		10/17/2014 17:54	1	TAL BUF	RAS
A:8260C SIM	MB 480-208474/6		480-208474		10/17/2014 17:54	1	TAL BUF	RAS
P:5030C	MB 480-209669/15		480-209669		10/23/2014 23:14	1	TAL BUF	CDC
A:8260C SIM	MB 480-209669/15		480-209669		10/23/2014 23:14	1	TAL BUF	CDC
P:3005A	MB 280-247262/1-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	MB 280-247262/1-A		280-247730	280-247262	10/14/2014 02:27	1	TAL DEN	LMT
A:300.0	MB 280-247078/6		280-247078		10/09/2014 12:21	1	TAL DEN	DAW
A:300.0	MB 280-247079/6		280-247079		10/09/2014 12:21	1	TAL DEN	DAW
A:350.1	MB 280-247441/106		280-247441		10/10/2014 18:44	1	TAL DEN	AFH
A:350.1	MB 280-247441/147		280-247441		10/10/2014 20:06	1	TAL DEN	AFH
A:SM 2320B	MB 280-247427/60		280-247427		10/10/2014 19:10	1	TAL DEN	AFH
A:SM 2320B	MB 280-247846/6		280-247846		10/14/2014 10:46	1	TAL DEN	AFH
A:SM 2320B	MB 280-247846/33		280-247846		10/14/2014 12:52	1	TAL DEN	AFH
A:SM 5310B	MB 280-247501/5		280-247501		10/10/2014 14:49	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 480-208273/4		480-208273		10/16/2014 23:41	1	TAL BUF	RAS
A:8260C SIM	LCS 480-208273/4		480-208273		10/16/2014 23:41	1	TAL BUF	RAS
P:5030C	LCS 480-208474/3		480-208474		10/17/2014 16:44	1	TAL BUF	RAS
A:8260C SIM	LCS 480-208474/3		480-208474		10/17/2014 16:44	1	TAL BUF	RAS
P:5030C	LCS 480-209669/13		480-209669		10/23/2014 22:51	1	TAL BUF	CDC
A:8260C SIM	LCS 480-209669/13		480-209669		10/23/2014 22:51	1	TAL BUF	CDC
P:3005A	LCS 280-247262/2-A		280-247730	280-247262	10/13/2014 15:00	1	TAL DEN	SEJ
A:6020	LCS 280-247262/2-A		280-247730	280-247262	10/14/2014 02:30	1	TAL DEN	LMT
A:300.0	LCS 280-247078/4		280-247078		10/09/2014 11:50	1	TAL DEN	DAW
A:300.0	LCS 280-247079/4		280-247079		10/09/2014 11:50	1	TAL DEN	DAW
A:350.1	LCS 280-247441/104		280-247441		10/10/2014 18:40	1	TAL DEN	AFH
A:350.1	LCS 280-247441/145		280-247441		10/10/2014 20:02	1	TAL DEN	AFH
A:SM 2320B	LCS 280-247427/58		280-247427		10/10/2014 19:01	1	TAL DEN	AFH
A:SM 2320B	LCS 280-247846/4		280-247846		10/14/2014 10:37	1	TAL DEN	AFH
A:SM 2320B	LCS 280-247846/31		280-247846		10/14/2014 12:43	1	TAL DEN	AFH
A:SM 5310B	LCS 280-247501/3		280-247501		10/10/2014 14:18	1	TAL DEN	CCJ

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

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 480-208273/5		480-208273		10/17/2014 00:05	1	TAL BUF	RAS
A:8260C SIM	LCSD 480-208273/5		480-208273		10/17/2014 00:05	1	TAL BUF	RAS
P:5030C	LCSD 480-208474/4		480-208474		10/17/2014 17:07	1	TAL BUF	RAS
A:8260C SIM	LCSD 480-208474/4		480-208474		10/17/2014 17:07	1	TAL BUF	RAS
P:5030C	LCSD 480-209669/14		480-209669		10/24/2014 00:06	1	TAL BUF	CDC
A:8260C SIM	LCSD 480-209669/14		480-209669		10/24/2014 00:06	1	TAL BUF	CDC
A:300.0	LCSD 280-247078/5		280-247078		10/09/2014 12:06	1	TAL DEN	DAW
A:300.0	LCSD 280-247079/5		280-247079		10/09/2014 12:06	1	TAL DEN	DAW
A:350.1	LCSD 280-247441/105		280-247441		10/10/2014 18:42	1	TAL DEN	AFH
A:350.1	LCSD 280-247441/146		280-247441		10/10/2014 20:04	1	TAL DEN	AFH
A:SM 2320B	LCSD 280-247427/59		280-247427		10/10/2014 19:06	1	TAL DEN	AFH
A:SM 2320B	LCSD 280-247846/5		280-247846		10/14/2014 10:42	1	TAL DEN	AFH
A:SM 2320B	LCSD 280-247846/32		280-247846		10/14/2014 12:48	1	TAL DEN	AFH
A:SM 5310B	LCSD 280-247501/4		280-247501		10/10/2014 14:32	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 280-247078/3		280-247078		10/09/2014 11:35	1	TAL DEN	DAW
A:300.0	MRL 280-247079/3		280-247079		10/09/2014 11:35	1	TAL DEN	DAW

Lab ID: MS

Client ID: N/A

Sample Date/Time: 10/06/2014 12:59

Received Date/Time: 10/07/2014 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	480-68733-F-6 MS		480-208273		10/17/2014 07:07	80	TAL BUF	RAS
A:8260C SIM	480-68733-F-6 MS		480-208273		10/17/2014 07:07	80	TAL BUF	RAS
P:5030C	480-68845-B-2 MS		480-208474		10/18/2014 01:06	50	TAL BUF	RAS
A:8260C SIM	480-68845-B-2 MS		480-208474		10/18/2014 01:06	50	TAL BUF	RAS

Lab ID: MSD

Client ID: N/A

Sample Date/Time: 10/06/2014 12:59

Received Date/Time: 10/07/2014 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	480-68733-F-6 MSD		480-208273		10/17/2014 07:31	80	TAL BUF	RAS
A:8260C SIM	480-68733-F-6 MSD		480-208273		10/17/2014 07:31	80	TAL BUF	RAS
P:5030C	480-68845-B-2 MSD		480-208474		10/18/2014 01:30	50	TAL BUF	RAS
A:8260C SIM	480-68845-B-2 MSD		480-208474		10/18/2014 01:30	50	TAL BUF	RAS

Quality Control Results

Client: SCS Engineers

Job Number: 280-60958-1

Laboratory Chronicle

Lab ID: DU

Client ID: N/A

Sample Date/Time: 10/07/2014 16:10

Received Date/Time: 10/09/2014 09:45

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 2320B	280-60977-A-3 DU		280-247427		10/10/2014 19:20	1	TAL DEN	AFH
A:SM 2320B	280-60990-D-3 DU		280-247846		10/14/2014 13:00	1	TAL DEN	AFH

Lab References:

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver



Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 October 2014

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

RE: Project: Hansville LF
ARI Job No.: ZE42

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 ten water samples on October 10, 2014. 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 ZE42

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

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



Date: 10/10/14

Page 1 of 1

No. of Coolers: 1

Cooler Temps:

ARI Assigned Number: ZL42

Turn-around Requested Standard

ARI Client Company: SCS Engineers Phone: 425-746-4600

Client Contact: Dan Venchiarutti

Client Project Name: Hansville LF

Client Project #: 04211017 03

Samplers: Matt O'Hare

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested				Notes/Comments
					Low Level Dissolved Arsenic				
SW-7	10/8/2014	900	W	1	X				Direct sub from
SW-6	10/8/2014	935	W	1	X				TestAmerica
SW-4	10/8/2014	1015	W	1	X				
SW-1	10/8/2014	1100	W	1	X				
MW-12I	10/8/2014	1145	W	1	X				
MW-13D	10/8/2014	1240	W	1	X				
MW-7	10/8/2014	855	W	1	X				
MW-6	10/8/2014	955	W	1	X				
MW-20DD	10/8/2014	955	W	1	X				
MW-14	10/8/2014	1045	W	1	X				
MW-5	10/8/2014	1140	W	1	X				
Comments/Special Instructions	Relinquished by (Signature)	[Signature]			Received by (Signature)	[Signature]			Received by (Signature)
	Printed Name	Matt O'Hare			Printed Name	Rich Hudson			Printed Name
	Company	SCS			Company	ARI			Company
	Date & Time	10/10/14 1215			Date & Time	10/10/14 1215			Date & Time

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

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



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client SCS Engineers

Project Name Hansville LF

COC No(s): _____ NA

Delivered by: Fed-Ex UPS ☒ Courier ☐ Hand Delivered Other: _____

Assigned ARI Job No: ZE42

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)

Time: 1255

4.2

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90877952

Cooler Accepted by: [Signature]

Date: 10/10/14

Time: 1215

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 ☐

YES ☐

Date/Time: _____

Equipment: _____

Split by: _____

Samples Logged by: 15

Date: 10-10-14

Time: 1321

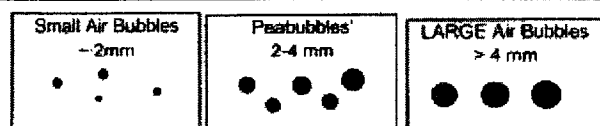
**** Notify Project Manager of discrepancies or concerns ****

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

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____



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



ARI Job No: ZE42
Client: Test America
Project Event: 04211017.03
Project Name: Hansville LF

Sample ID	ARI		Matrix	Sample Date/Time	VTSR
	Lab ID	LIMS ID			
1. SW-7	ZE42A	14-21362	Water	10/08/14 09:00	10/10/14 12:15
2. SW-6	ZE42B	14-21363	Water	10/08/14 09:35	10/10/14 12:15
3. SW-4	ZE42C	14-21364	Water	10/08/14 10:15	10/10/14 12:15
4. SW-1	ZE42D	14-21365	Water	10/08/14 11:00	10/10/14 12:15
5. MW-12I	ZE42E	14-21366	Water	10/08/14 11:45	10/10/14 12:15
6. MW-13D	ZE42F	14-21367	Water	10/08/14 12:40	10/10/14 12:15
7. MW-7	ZE42G	14-21368	Water	10/08/14 08:55	10/10/14 12:15
8. MW-6	ZE42H	14-21369	Water	10/08/14 09:55	10/10/14 12:15
9. MW-20DD	ZE42I	14-21370	Water	10/08/14 09:55	10/10/14 12:15
10. MW-14	ZE42J	14-21371	Water	10/08/14 10:45	10/10/14 12:15
11. MW-5	ZE42K	14-21372	Water	10/08/14 11:40	10/10/14 12:15

Printed 10/10/14 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 $\geq$ 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 $\geq 40\%$ 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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-7

SAMPLE

Lab Sample ID: ZE42A

LIMS ID: 14-21362

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00176	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-7

DUPLICATE

Lab Sample ID: ZE42A

LIMS ID: 14-21362

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	0.00176	0.00181	2.8%	+/- 20%	

Reported in mg/L

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-7

MATRIX SPIKE

Lab Sample ID: ZE42A

LIMS ID: 14-21362

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	0.00176	0.00674	0.005	99.6%	

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%

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-6

SAMPLE

Lab Sample ID: ZE42B

LIMS ID: 14-21363

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00246	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-4

SAMPLE

Lab Sample ID: ZE42C

LIMS ID: 14-21364

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00188	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: SW-1
SAMPLE

Lab Sample ID: ZE42D
LIMS ID: 14-21365
Matrix: Water
Data Release Authorized: 
Reported: 10/17/14

QC Report No: ZE42-Test America
Project: Hansville LF
04211017.03
Date Sampled: 10/08/14
Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00094	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-12I

SAMPLE

Lab Sample ID: ZE42E

LIMS ID: 14-21366

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00229	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-13D

SAMPLE

Lab Sample ID: ZE42F

LIMS ID: 14-21367

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00346	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-7

SAMPLE

Lab Sample ID: ZE42G

LIMS ID: 14-21368

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00106	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: ZE42H
LIMS ID: 14-21369
Matrix: Water
Data Release Authorized: 
Reported: 10/17/14

QC Report No: ZE42-Test America
Project: Hansville LF
04211017.03
Date Sampled: 10/08/14
Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00181	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

**Sample ID: MW-20DD
SAMPLE**

Lab Sample ID: ZE42I

LIMS ID: 14-21370

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.0002	0.0016	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

**Sample ID: MW-14
SAMPLE**

Lab Sample ID: ZE42J

LIMS ID: 14-21371

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.0002	0.0246	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: MW-5

SAMPLE

Lab Sample ID: ZE42K

LIMS ID: 14-21372

Matrix: Water

Data Release Authorized:

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: 10/08/14

Date Received: 10/10/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/17/14	7440-38-2	Arsenic	0.00008	0.00194	

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: ZE42MB

LIMS ID: 14-21363

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: NA

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
200.8	10/14/14	200.8	10/16/14	7440-38-2	Arsenic	0.00004	0.00004	U

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

INORGANICS ANALYSIS DATA SHEET

DISSOLVED METALS

Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: ZE42LCS

LIMS ID: 14-21363

Matrix: Water

Data Release Authorized: 

Reported: 10/17/14

QC Report No: ZE42-Test America

Project: Hansville LF

04211017.03

Date Sampled: NA

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	0.00489	0.00500	97.8%	

Reported in mg/L

N-Control limit not met

Control Limits: 80-120%



Chain of Custody

TestAmerica Denver 2.1.5.1 to IR6 10/9/14
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171
Transferred: TC

Client Information		Lab Pkt:													
Client Contact: <u>Don Vachon</u>		Sara, Betsy A													
Company: <u>Don Vachon</u>		E-Mail: <u>betsy.sara@testamerica.com</u>													
Address: <u>2405 140th Avenue NE Suite 107</u>		280-23414-6845.1													
City: <u>Bellevue</u>		Page: <u>1 of 1</u>													
State: <u>WA</u>		Job #: <u>0421017.03</u>													
Phone: <u>425-546-4600</u>		Preservation Codes:													
WO #: <u>28006013 - 4Q14 Sampling</u>		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 Other: <u>W - ph 4-5</u>													
Project Name: <u>Hansville Landfill</u>		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecalhydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)													
Site: <u>Washington</u>		Other: <u>W - ph 4-5</u>													
Sample Identification		Analysis Requested													
Sample ID	Sample Date	Sample Time	Sample Type	Matrix	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffer)	Dissolved Metals	Ammonia/TC	Alk/Cl/NO3/NO3(NO3)C	Ortho-phosphate (field filtered)	Dissolved Arsenic (Direct sub to ARI)	Total Number of Containers	Special Instructions/Note:	
MW-13D	10/8/14	1240	G	W	X	X	X	X	X	X	X	X	X	X	Short Holds: NO3/NO2(IC), Orthophosphate (IC)
MW-12T	11/4/5	1145	↓	↓	X	X	X	X	X	X	X	X	X	X	Dissolved Arsenic subbed direct to ARI
SW-1	11/00	1100	↓	↓	X	X	X	X	X	X	X	X	X	X	
SW-4	10/15	1015	↓	↓	X	X	X	X	X	X	X	X	X	X	
SW-6	09/35	0935	↓	↓	X	X	X	X	X	X	X	X	X	X	
SW-7	09/00	0900	↓	↓	X	X	X	X	X	X	X	X	X	X	
Tap Blank	-	-	-	-	X	X	X	X	X	X	X	X	X	X	
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)										
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological					☐ 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:					Method of Shipment:										
Relinquished by: <u>Don Vachon</u>					Date/Time: <u>10/8/14 1345</u>										
Relinquished by: <u>Don Vachon</u>					Date/Time: <u>10/8/14 1345</u>										
Relinquished by: <u>Don Vachon</u>					Date/Time: <u>10/8/14 1345</u>										
Relinquished by: <u>Don Vachon</u>					Date/Time: <u>10/8/14 1345</u>										
Custody Seals Intact: <u>Yes</u>					Custody Seal No.: <u>329977, 329978</u>										

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-60958-1

Login Number: 60958

List Source: TestAmerica Denver

List Number: 1

Creator: Conquest, Tyler W

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.	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	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: 280-60958-1

Login Number: 60958

List Number: 2

Creator: Robison, Zachary J

List Source: TestAmerica Buffalo

List Creation: 10/10/14 11:42 AM

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	2.7 C
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	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-60958-1

Login Number: 60958

List Number: 3

Creator: Robison, Zachary J

List Source: TestAmerica Buffalo

List Creation: 10/23/14 03:39 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	2.7 C
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 2014 Landfill Inspection Reports

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February 10, 2014

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RECEIVED
FEB 12 2014 *HL*
KITSAP COUNTY
SOLID WASTE

RE: 2014 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 2014 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 February 6, 2014. The facility was in compliance with state and local solid waste regulations.

The following items were noted or discussed during the inspection:

- We discussed the draft permit that is in process with the Health District.
- We noted that the landfill was mowed in the fall.
- The landfill was relatively dry because of the low rainfall totals.
- The next inspection is scheduled for April of 2014.

If you have any questions or comments please feel free to contact me at (360) 337-5605.

Sincerely,



Grant A. Holdcroft, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Harrison LF Operator: KPHD Phone #: _____
 Location of Facility: George St
 Inspector: ASH Holloway Date: 7/6/2014 Time: _____
 Type of Inspection Checklist Used: _____ Facility Representative Present: Alisa is Richardson

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled	☒ Full Quarterly	☒ Compliant	☐ Yes ☒ No
☐ Return	☐ Brief	☐ Non-Compliant	
☐ Complaint	☐ No Entry	☐ Approved	
☐ Permit Investigation	☐ Consultation	☐ Disapproved	
☐ Sample	☐ Plan Review	☐ Other	
☐ By Request	☐ Site Review		
☐ Other	☐ Other		

Item #	Description (see attached checklist for complete list of items)	Correction Date

Comments: Disapproved - no entry LF Material - LF day - leave
infect details

Signatures: Alisa Richardson Facility Representative ASH Holloway KPHD Inspector

File Name: _____

✓ Data
Letter

May 14, 2014

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RECEIVED

MAY 19 2014 *BL*

KITSAP COUNTY
SOLID WASTE

RE: 2014 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 2014 at the Hansville Landfill. Thank you for meeting me at the facility. It was a pleasure to see you and inspect the Hansville Landfill.

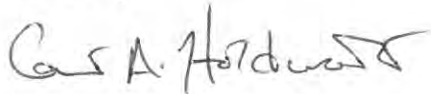
The inspection occurred on May 8, 2014. The facility was in compliance with state and local solid waste regulations.

The following items were noted or discussed during the inspection:

- No Inspection Form was filled out during this inspection.
- We discussed the draft permit that is in process with the Health District.
- We briefly discussed the tree cutting going on at the property to the south of the landfill.
- Mowing and Scotch Broom removal is planned for the summer.
- The next inspection is scheduled for August of 2014.

If you have any questions or comments please feel free to contact me at (360) 337-5605.

Sincerely,



Grant A. Holdcroft, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file



KITSAP PUBLIC
HEALTH DISTRICT

A-1.1.2
345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

September 5, 2014

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RECEIVED

SEP 09 2014 RN

KITSAP COUNTY
SOLID WASTE

RE: 2014 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 2014 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 August 29, 2014. The facility was in compliance with state and local solid waste regulations.

The following items were noted or discussed during the inspection:

- No Inspection Form was filled out during this inspection.
- We briefly discussed the ditch mowing that is in process.
- Mowing of the landfill took place over the summer.
- The next inspection is scheduled for November of 2014.

If you have any questions or comments please feel free to contact me at (360) 337-5605.

Sincerely,

Grant A. Holdcroft, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Hansville Landfill Operator: KCPW Phone #: 337-5777

Location of Facility: Ecology Rd, Hansville

Inspector: G A Holdcroft Date: 8/29/14 Time: 0900

Type of Inspection Checklist Used: None Facility Representative Present: Alexis McKinnon

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled	☒ Full Quarterly	☒ Compliant	☐ Yes ☒ No
☐ Return	☐ Brief	☐ Non-Compliant	
☐ Complaint	☐ No Entry	☐ Approved	
☐ Permit Investigation	☐ Consultation	☐ Disapproved	
☐ Sample	☐ Plan Review	☐ Other	
☐ By Request	☐ Site Review		
☐ Other	☐ Other		
			Attachments? (photos, etc.)
			☐ Yes ☒ No
			Type? _____

Item #	Description (see attached checklist for complete list of items)	Correction Date
	<u>None.</u>	

Comments: Alder in ditches to be removed, Planning on painting
Monitoring wells and gas risers, LF recently mowed, discussed
moving of surface water sample point. SW-7

Signatures: _____
 Facility Representative

G A Holdcroft
 KPHD Inspector

File Name: _____

November 21, 2013

Keli McKay-Means
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RECEIVED

JAN 29 2014

KITSAP COUNTY
SOLID WASTE

RE: 2013 4th QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKay-Means:

The Kitsap Public Health District is writing to relay the results of the 4th quarter inspection of 2013. Thank you for meeting me at the facility. As always it is a pleasure to see you and inspect the Hansville Landfill.

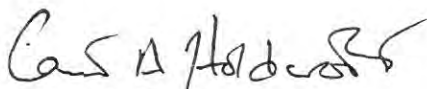
The inspection occurred on November 15, 2013. The facility was in compliance with state and local solid waste regulations.

The following items were noted or discussed during the inspection:

- The post closure permit comments have been received at the Health District and are under review. A separate comment letter will be forthcoming.
- The survey of the landfill is still on the list of items to be accomplished.
- We discussed the landfill gas blower system replacement. We looked at the new blowers and took several photos.
- The next inspection is scheduled for February 2014.

If you have any questions or comments please feel free to contact me at (360) 337-5605.

Sincerely,



Grant A. Holdcroft, R.S.
Environmental Health Specialist
Solid and Hazardous Waste Program

cc: Project file

SOLID WASTE FACILITY INSPECTION FORM

Facility Name: Hansville LF Operator: KCPW Phone #: _____

Location of Facility: Ecology Rd.

Inspector: GA Holdcroft Date: 11/15/2013 Time: 8:30 AM

Type of Inspection Checklist Used: _____ Facility Representative Present: Keli McKay-Means

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled	☒ Full Quarterly	☒ Compliant	☐ Yes ☒ No
☐ Return	☐ Brief	☐ Non-Compliant	
☐ Complaint	☐ No Entry	☐ Approved	
☐ Permit Investigation	☐ Consultation	☐ Disapproved	Attachments? (photos, etc.)
☐ Sample	☐ Plan Review	☐ Other	☒ Yes ☐ No
☐ By Request	☐ Site Review		Type? <u>Blower</u>
☐ Other	☐ Other		

Item #	Description (see attached checklist for complete list of items)	Correction Date
	<u>No issues.</u>	

Comments: New blower installed, Photos; Discussed permit - KPHD to send letter back in mid December; Survey of Hansville LF still in the works.

Signatures: _____
Facility Representative

GA Holdcroft
KPHD Inspector

File Name: _____