SCS ENGINEERS

2013 Annual Monitoring Report

Remedial Action at the Hansville Landfill

Kitsap County, WA

Presented to:

KITSAP COUNTY/
WASTE MANAGEMEMENT OF WASHINGTON, INC

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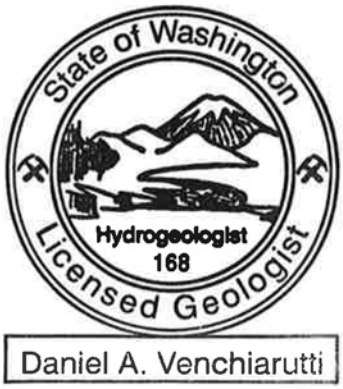

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ACRONYMS

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

QA/QC	Quality Assurance/Quality Control
RCW	Revised Code of Washington
RFQ	Request for Qualifications
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
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 2013. 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 2013 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 2013 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 2013 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 2013 (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 2013 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 2013 (Appendix C).
- Field report forms and laboratory analytical reports (including data validation summaries) for the fourth quarter 2013 (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; 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 elevations ranging from approximately 175 feet above msl (at MW-14) to 217 feet msl (at MW-9). 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 though MW-6) were added to the monitoring program in 1988. Beginning in 1996, more groundwater wells were installed as part of a phased RI including wells MW-7 through MW-12 during Phase I, and five additional wells (MW-8D, MW-12I, MW-13S, MW-13D, and MW-14) during Phase II.

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

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

- Quarterly sampling of six (6) groundwater monitoring wells (MW-5, MW-6, MW-7, MW-12I, MW-13D and MW-14). The groundwater parameter suite included: alkalinity, ammonia, bicarbonate, carbonate, chloride, chemical oxygen demand (COD), hydroxide (alkalinity), nitrate, nitrite, sulfate, total organic carbon (TOC), total coliform, dissolved metals (calcium, copper, iron, lead, magnesium, manganese, potassium, sodium and low-level arsenic), and vinyl chloride by selected ion monitoring (SIM). Annual sampling and analysis is also conducted for the 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 (Parametrix 2007). Probe GP-6 was installed near 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 additional probes were constructed as single-completions and are screened in the soil column above the saturated zone of the upper aquifer.

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.

Routine LFG monitoring included 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 continue to 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, water quality parameters to be analyzed quarterly for both groundwater and surface water include: 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. 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 2013 GROUNDWATER AND SURFACE WATER MONITORING

Water quality monitoring for groundwater and surface water was conducted at the Hansville Landfill Site by SCS on January 3rd, April 4th, July 11th and 24th, and October 3rd, 2013. Dual sampling crews were typically utilized for each event, which permitted the water quality monitoring activities to be completed during the course of a single field day. However, because of an equipment failure issue during the July 11th sampling, only the surface water monitoring could be completed on this date. SCS subsequently remobilized to the landfill on July 24th to monitor the site groundwater wells.

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.

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 2013 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 2013 quarterly event. Analytical results for the fourth quarter 2013 are tabulated in Appendix B. Summary data tables for the three preceding 2013 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 first quarter nitrate, nitrite, and orthophosphate samples, no significant data quality issues were identified for the 2013 analytical data set. Due to an express shipping delay, the laboratory ran these first 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 2013 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 2013 monitoring event are presented in Table 1 (Appendix B). A potentiometric surface map illustrating groundwater flow across the Site on October 3rd, 2013 is presented as Figure 4 (Appendix B). Tabulated groundwater data and groundwater contour maps previously reported for the first three quarters of the 2013 monitoring year are attached in Appendix C.

Water table elevations measured over the current reporting period remained generally stable, ranging between 237.51 feet msl (MW-12I in July) to 265.64 feet msl (MW-5 in July). Seasonal fluctuations in intrawell water table elevations during 2013 ranged between 0.21 and 1.41 feet These data are consistent with the past several year's monitoring results (SCS 2011, 2012 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

Over the 2013 reporting period, 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. The reported concentrations ranged between 0.0158 mg/L (in October) and 0.0213 mg/L (in April). Low, but detectable, levels of arsenic (ranging from 0.00094 mg/L at MW-7 in October to 0.0035 mg/L at MW-6 in January) were consistently reported during all four quarters in the remaining groundwater wells. Time-series diagrams for arsenic in groundwater are provided in Appendix D.

MW-14 was also the only monitoring well where manganese routinely exceeded its 2.24 mg/L site-specific groundwater cleanup level during 2013. These reported exceedances ranged between 2.5 mg/L (in July) to 2.8 mg/L (in January and October). Similar to past monitoring years, the highest manganese levels were generally observed in those wells (MW-6 and MW-14) located 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 2013 reporting period. These exceedances were detected in MW-6 (ranging from 0.17 µg/L in April to 0.34 µg/L in October), MW-12I (ranging from 0.11 µg/L in January to 0.23 µg/L in October) and MW-14 (ranging from 0.22 µg/L in October to 0.25 µg/L in the remaining three quarters). During 2013, the most elevated vinyl chloride concentrations were generally observed during the fourth quarter (October) event. A full EPA 8260 analysis conducted during

the January 2013 event reported sporadic, low-level detections of several additional VOCs, including 1,1-dichloroethane, dichlorofluromethane, ethyl ether, 1,1-dichloroethene (total) , cis-1,2-dichloroethene and trans-1,2-dichloroethene in the groundwater samples. However, none of these latter VOC detections approached their respective groundwater protection standards. Time-series diagrams for vinyl chloride in groundwater are also provided in Appendix D.

The most elevated levels of Hansville Landfill Site COCs (arsenic, manganese and vinyl chloride) continue to be observed primarily in groundwater well MW-14, which is situated on the downgradient (southwest) edge of the solid waste landfill. As noted during previous monitoring cycles, concentrations of site COCs apparently 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.

For the Hansville Landfill Site, the most reduced groundwater conditions observed during 2013 were generally reported in downgradient wells MW-6, MW-13D and MW-14. These wells typically maintained the lowest dissolved oxygen (0.03 to 1.01 mg/L) and redox (-53.2 to 80.1 mV) levels. 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 2013, with sulfate concentrations ranging from 4.9 mg/L (MW-7 in October) to 28 mg/L (MW-6 in April) and TOC concentrations ranging from <1 mg/L (MW-5 and 13D throughout the year) to 2.6 mg/L (MW-12I in January and July). Orthophosphate was not detected in any of the groundwater (or surface water) samples analyzed during the 2013 monitoring period.

The 2013 geochemical indicator parameter results 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

With the exception of a single, anomalous vinyl chloride detection at SW-1 (0.032 µg/L during July), none of the surface water samples analyzed during the 2013 monitoring period reported any of the Hansville Landfill COCs at levels in excess of their respective site-specific cleanup

levels. A review of the laboratory QA/QC associated with the July SW-1 sample results appeared to confirm the original results. However, it should be noted that the SW-1 vinyl chloride detection was the first recorded at this location, and vinyl chloride was not detected above the method reporting limit during the subsequent (October) monitoring event. As a result, the July vinyl chloride exceedance will be considered to represent either an analytical outlier or an erroneous value unless this anomalous detection can be confirmed during future water quality monitoring.

Several J-qualified vinyl chloride detections (i.e., estimated values below the laboratory reporting limit) were also reported during 2013 at the SW-4 location. These estimated values ranged between 0.0042 µg/L (in January) and 0.0092 µg/L (in April). No other VOC detections were reported in any of the surface water samples analyzed during the reporting year.

In addition, low, but detectable, concentrations of arsenic and manganese were consistently reported in surface water samples during the monitoring year. Arsenic concentrations in these samples ranged between 0.00080 mg/L (SW-7 in January) to 0.00420 mg/L (SW-6 in July). Manganese concentrations ranged between 0.00044 mg/L (SW-1 in January) to 0.370 mg/L (SW-6 in July).

As noted during previous monitoring years, the highest levels of site COCs and related landfill indicator parameters were typically reported at surface water stations SW-4 and SW-6, which are situated immediately west (downgradient) of the landfill. Except for the anomalous vinyl chloride detection reported at SW-1 in July, the levels of site COCs observed at these locations during the 2013 monitoring period remain substantially reduced from those initially reported at the Site. Similarly, levels of chloride (ranging from 3.6 mg/L [SW-7 in April] to 18 mg/L [SW-4 in July]), sulfate (ranging from <1 mg/L [SW-4 in July] to 23 mg/L [SW-4 in April]), TOC (ranging from 1.6 mg/L [SW-1 in July] to 27 mg/L [SW-6 in October]), and ammonia (ND [non-detect] to 0.053 mg/L [SW-6 in July]) 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 2013.

3.2 STATISTICAL EVALUATION

Consistent with Appendix D of the final Hansville Landfill CAP, groundwater data reported for the 2013 monitoring period were statistically evaluated for selected site COCs. Vinyl chloride and arsenic groundwater results that exceeded their respective site-specific cleanup standards during 2013 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

During the 2013 reporting period, three downgradient groundwater monitoring wells (MW-6, MW-12I, and MW-14) reported vinyl chloride concentrations that exceeded the 0.025 µg/L site-specific cleanup standard. Downgradient well MW-14 also reported 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. Downgradient wells MW-6 and MW-12I did not report any statistically significant Mann-Kendall trends for vinyl chloride. Follow-up Sens Slope tests for these same wells did not report any statistically significant concentration trends (either increasing or decreasing) for either vinyl chloride or arsenic. It should also be noted that negative Sens Slope results continue to be reported for vinyl chloride concentrations in MW-14. A flat (zero slope) Sens result was calculated for vinyl chloride in MW-12I.

Vinyl chloride and arsenic data reported since January 2007 are plotted versus time (time series graphs) for all the remaining groundwater wells monitored during 2013 (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 2016 (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. The 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 2013 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 2013 vinyl chloride results in downgradient wells MW-6, MW-12I, and MW-14 (which were 0.255 µg/L, 0.165 µg/L and 0.243 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

exceeded this parameter's site specific cleanup level. Conversely, the calculated UCL/LCL values for vinyl chloride in the remaining groundwater monitoring wells (MW-5, MW-7 and MW-13D) continue to remain well below the 0.025 µg/L cleanup level.

The calculated mean, UCL, and LCL for arsenic in MW-14 (0.01893 mg/L, 0.02175 mg/L and 0.01610 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 LANDFILL GAS MONITORING

During 2013, 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.

The primary and backup blowers for the facility's LFG collection system were replaced in November 2013. The new units consist of high-efficiency, electric, Rotron blowers each equipped with a 1.0 horsepower, sealed, explosion-proof, regenerative motor. New inlet/outlet connector piping and a new electrical cabinet were also installed, and the existing flame arrestor was inspected, cleaned, and refitted. The existing strobe light was also extended higher on the flare station to increase its visibility. In addition, new blower timers were installed on each of the units. The recent upgrades to the Hansville Landfill blower system are intended to improve the performance and efficiency of the LFG collection system. Several rounds of system tuning were conducted during November and December to balance the extraction well field to the new blowers.

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

4.1 GAS MONITORING RESULTS

Landfill gas monitoring data for the fourth quarter 2013 are presented in Table 4 (Appendix B). LFG monitoring data tables that were previously reported during the preceding 2013 quarters are also attached in Appendix C. Prior to the blower upgrade, the adjusted air flow though the LFG extraction system during the fourth quarter 2013 ranged between 22 and 49 standard cubic feet per minute (scfm). After the blower upgrade, the adjusted air flow measured through the system inlet/outlet was 50 scfm. Over the entire 2013 reporting period, the adjusted air flow measured through the system ranged between 6 and 72 scfm.

During the fourth quarter of 2013, methane concentrations measured within the active landfill extraction system ranged between 0.0 and 8.8 methane (by percent volume). A similar range of methane concentrations were reported in the active extraction system during preceding 2013 quarters. However, several extraction wells recorded slightly higher methane levels (up to 17.9 percent methane by volume) during the second and third quarters of 2013. LFG temperatures measured within the extraction well field during 2013 ranged between 37 and 77 degrees ^{0}F. These temperatures are typical for LFG generated at older solid waste landfills.

The regulatory limit for LFG probes stated in WAC 173-304-460 is 5 percent methane by volume (the lower explosive limit [LEL]) at the site boundary. During 2013, detectable methane

concentrations were not reported above the equipment detection limits in any of the perimeter gas probes. Over the reporting year, oxygen concentrations in the perimeter probes ranged between 14.6 and 20.8 percent volume, with most measurements remaining near ambient conditions. Carbon dioxide levels measured during the reporting period ranged between 0.1 and 4.6 percent volume.

The 2013 LFG monitoring results continue to indicate that the site remains in compliance with the subsurface methane threshold limits at the property boundary. The data also indicate that LFG remains present in the soils immediately surrounding and under the solid waste disposal areas. Overall, the LFG extraction and monitoring systems at the Hansville Landfill operated within design parameters during the reporting period.

5.0 REFERENCES

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

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Appendix A

Site Figures

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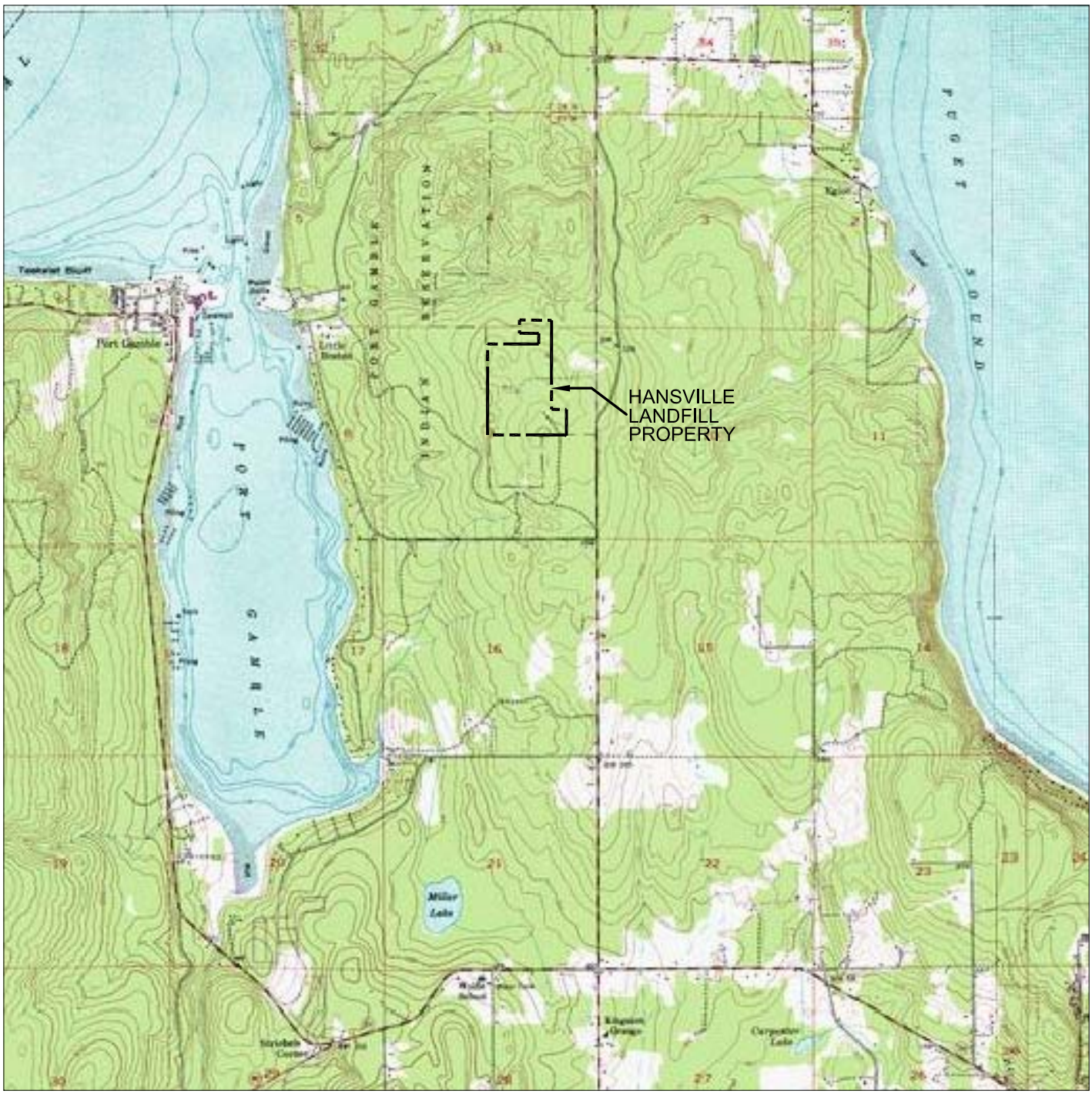

SOURCE: USGS

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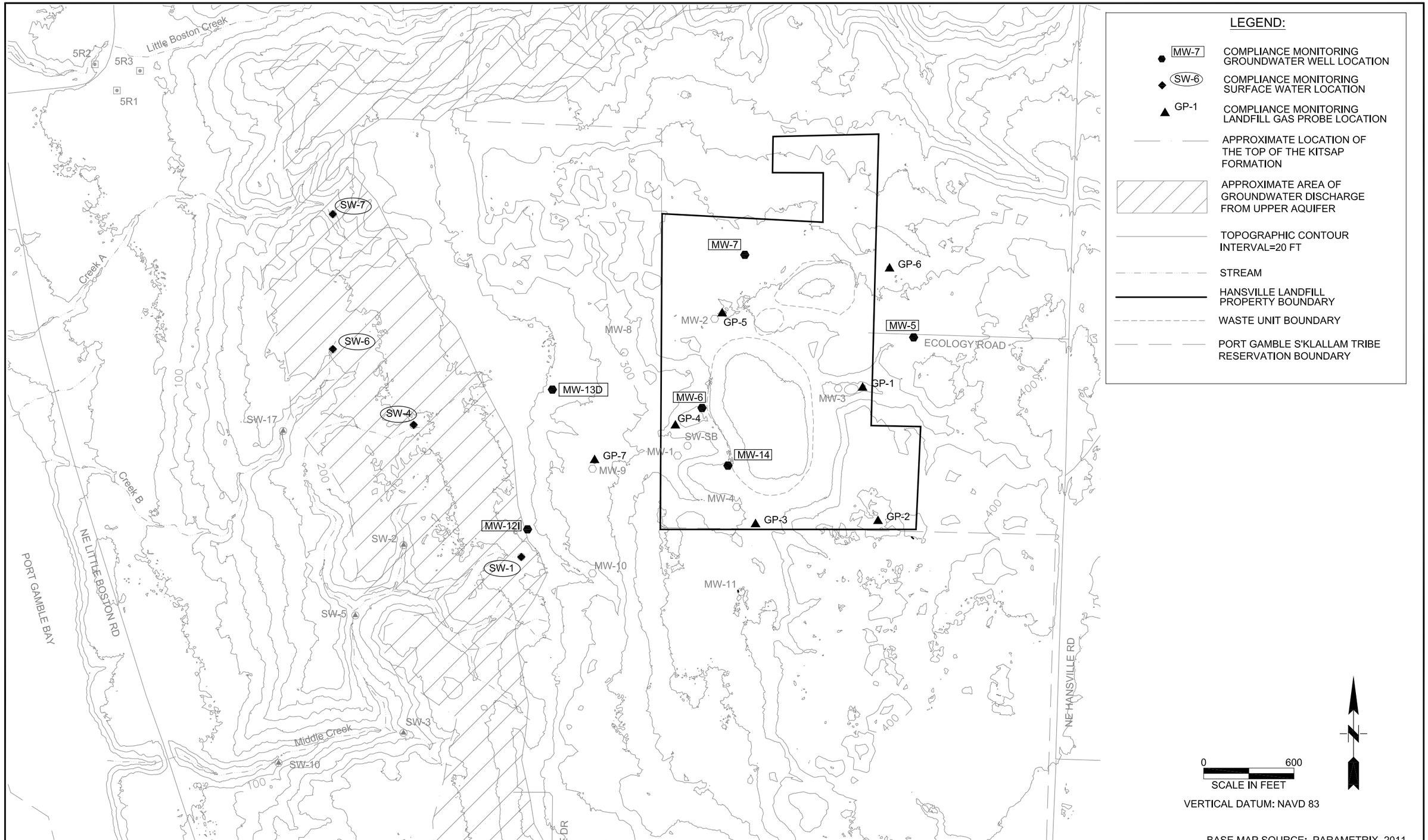
PROJECT NO. 04211017.02	DES BY L.L.
SCALE NA	CHK BY D.V.
CAD FILE FIGURE 1	APP BY G.H.

LANDFILL PROPERTY LOCATION MAP

HANSVILLE LANDFILL SITE
KITSAP COUNTY, WASHINGTON

DATE JAN 2014

FIGURE 1



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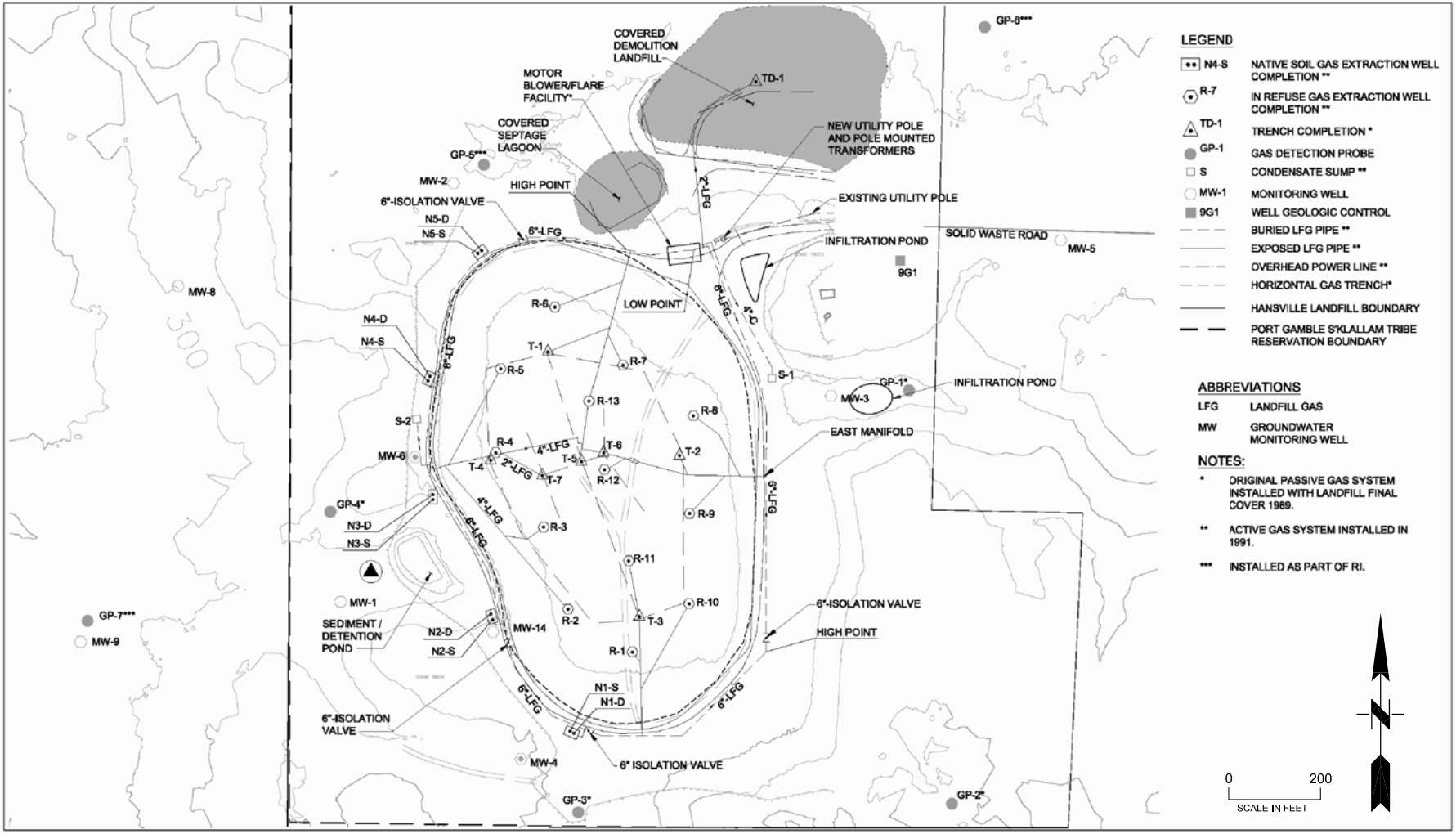
PROJECT NO. 042110017.02	DES BY L.L.	COMPLIANCE MONITORING LOCATIONS HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE JAN 2014
SCALE AS SHOWN	CHK BY D.V.		FIGURE 2
CAD FILE FIGURE 2	APP BY G.H.		



BASE MAP SOURCE: PARAMETRIX, 2004

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PROJECT NO.	DES BY
04211017.02	L.L
SCALE	CHK BY
AS SHOWN	D.V.
CAD FILE	APP BY
FIGURE 3	G.H.

LANDFILL GAS SYSTEM & PROBE LOCATIONS

HANSVILLE LANDFILL
KITSAP COUNTY, WASHINGTON

DATE JAN 2014

FIGURE 3

Appendix B

Fourth Quarter (October) 2013 Summary Data Tables For Groundwater, Surface Water and Landfill Gas & October 2013 Groundwater Contour Map

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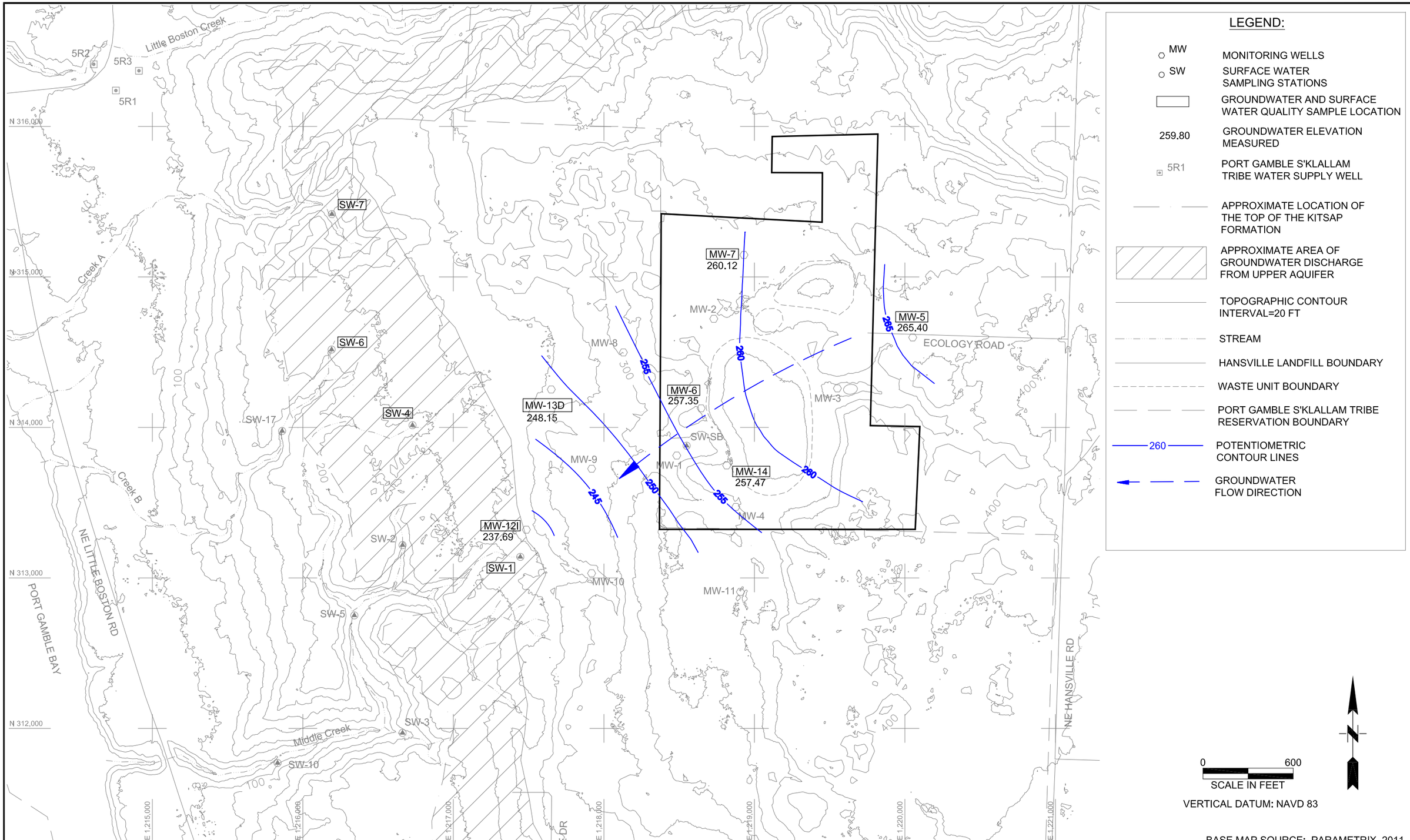
Table 1. Water Level Elevations, Fourth Quarter 2013 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 3, 2013

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	101.50	265.40
MW-6	332.0	332.7	260	245	75.35	257.35
MW-7	344.3	346.0	259	244	85.88	260.12
MW-12I	245.6	248.1	217	207	10.41	237.69
MW-13D	258.1	260.4	205	195	12.25	248.15
MW-14	338.6	341.1	262	247	83.63	257.47

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



VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

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PROJECT NO. 042110017.02	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS OCTOBER 3, 2013	DATE DEC 2013
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE 4
CAD FILE FIGURE 4	APP BY G.H.		

Table 2. Groundwater Quality Data, Fourth Quarter 2013 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 3, 2013

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)**		4.82	0.08	--	0.2	0.08	0.06	0.07	--
pH (units)		7.60	7.19	--	6.82	7.49	7.97	7.00	--
Specific Conductivity (uS)		132	353	--	325	199	217	299	--
Temperature (degrees C)		12.6	16.5	--	12.4	10.6	10.9	14.5	--
Redox (Mv)		31.4	51.9	--	122	26.6	-44.4	-53.2	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		58	140	160	180	97		130	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		58	140	160	180	97	89	130	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		6.2	16	20	2.6	5.5	8.5	8.5	--
Nitrate (As N)		0.62	2.3	2.5	0.64	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		7.9	21	22	4.9	6.6	17	17	--
Total Organic Carbon (TOC)		1.0 U	1.1	1.1	1.7	2.5	1.0 U	1.2	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00210	0.0023	0.0024	0.00094	0.0022	0.00301	0.0158	--
Manganese	2.24	0.001 U	0.650	0.670	0.001 U	0.052	0.035	2.8	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.									
Vinyl chloride	0.025	0.020 U	0.34	0.36	0.020 U	0.23	0.020 U	0.22	0.020 U

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

U Compound not detected at reporting limit.

-- Not Tested.

** Dissolved oxygen field readings are suspect due to poor probe response; only use data for relative comparisons.

Shaded results exceed site cleanup levels.

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

Table 3. Surface Water Quaility Data, Fourth Quarter 2013 Monitoring Event
Hansville Landfill, Kitsap County, Washington, October 3, 2013

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		1.2	0.82	0.59	0.42	--
pH (units)		7.65	7.53	6.93	6.53	--
Specific Conductivity (uS)		210	381	132	171	--
Temperature (degrees C)		12.2	12.6	11.8	11.9	--
Redox (Mv)		56	78	56	155	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		86	160	55	58	--
Ammonia (As N)		0.030 U	0.030 U	0.038	0.030 U	--
Bicarbonate		86	160	55	58	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		4.9	16	4.8	5.6	--
Nitrate (As N)		1.9	0.93	0.5 U	0.87	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		11	20	6.9	6.1	--
Total Organic Carbon (TOC)		3.6	14	27	14.0	--
Orthophosphate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.0017	0.0026	0.0031	0.0016	--
Manganese	2.24	0.0027	0.065	0.084	0.0047	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.						
Vinyl chloride	0.025	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

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

U Compound not detected at reporting limit.

-- Not Tested.

Shaded results exceed site cleanup levels.

Table 4. Landfill Gas Data, Fourth Quarter 2013 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	11/20/2013 9:49	0	1	20.7	78.3			-0.26	
Probe 2 Deep	11/20/2013 10:06	0	0.1	21	78.9			-1.09	
Probe 2 Middle	11/20/2013 10:01	0	1	19.9	79.1			-0.63	
Probe 2 Shallow	11/20/2013 9:57	0	0.1	21.2	78.7			0.35	
Probe 3	11/20/2013 10:26	0	1.1	20.1	78.8			-0.1	
Probe 4	11/20/2013 10:31	0	2	19.2	78.8			-0.09	
Probe 5	11/20/2013 10:14	0	1.6	19.8	78.6			0.2	
Probe 6	11/20/2013 10:20	0	2.4	19.4	78.2			-0.05	
Probe 7	11/20/2013 10:36	0	0.1	20.6	79.3			-0.01	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
BB	11/20/13	38	30	Partly Cloudy	Calm	S			

% 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 4 (continued). Landfill Gas Data, Fourth Quarter 2013 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	11/20/2013 8:50	4.6	5.5	11.7	78.2	-1.2	-1.2	35	35	2	1			Closed valve 1/2 to 1 turn
Extraction Well 002	11/20/2013 8:47	0	0.6	20.4	79	-0.9	-0.9	39	39	2	0			Closed valve > 1 turn; Valve 100% Closed
Extraction Well 003	11/20/2013 8:44	4.1	6.5	10.4	79	-0.9	-0.9	40	42	2	1			Closed valve 1/2 to 1 turn
Extraction Well 004	11/20/2013 8:36	0	0.6	20.7	78.7	-1	-1	35	35	2	0			Closed valve > 1 turn; Valve 100% Closed
Extraction Well 005	11/20/2013 8:08	0	0.2	20.9	78.9	-1	-1	41	43	3	0			Closed valve > 1 turn; Valve 100% Closed
Extraction Well 006	11/20/2013 8:03	0	0.5	21.3	78.2	-0.8	-0.8	44	44	1	0			Closed valve 1/2 to 1 turn; Valve 100% Closed
Extraction Well 007	11/20/2013 8:00	4	7.2	9.1	79.7	-1.4	-1.4	39	42	3	1			Closed valve 1/2 to 1 turn
Extraction Well 008	11/20/2013 7:57	0	0.3	21.2	78.5	-1.1	-1.1	40	39	2	0			Closed valve > 1 turn; Valve 100% Closed
Extraction Well 009	11/20/2013 8:19	0	0.5	20.8	78.7	-1	-1.1	40	41	2	0			Closed valve 1/2 to 1 turn; Valve 100% Closed
Extraction Well 010	11/20/2013 8:56	0	0.8	20.2	79	-0.9	-1	39	41	2	0			Closed valve > 1 turn; Valve 100% Closed
Extraction Well 011	11/20/2013 9:00	5.1	6.9	9.7	78.3	-1.1	-1.1	41	41	2	1			Closed valve 1/2 to 1 turn
Extraction Well 012	11/20/2013 8:23	4.2	5.6	10.3	79.9	-1.2	-1.2	42	43	2	1			Closed valve 1/2 to 1 turn
Extraction Well 013	11/20/2013 8:15	4.1	6.8	9	80.1	-1.2	-1.2	38	38	2	1			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	11/20/2013 9:10	2.8	4.2	13.9	79.1	-0.8	-0.8	51	51	2	2			Opened valve 1/2 turn or less
Native Soil Extraction Wel	11/20/2013 9:09	0	0.8	19.8	79.4	-0.8	-0.8	40	41	2	2			No Change
Native Soil Extraction Wel	11/20/2013 9:15	5.9	7	9.9	77.2	-0.8	-0.8	44	44	2	3			Opened valve 1/2 to 1 turn
Native Soil Extraction Wel	11/20/2013 9:14	0.2	0.8	19.3	79.7	-0.6	-0.6	44	44	3	3			No Change
Native Soil Extraction Wel	11/20/2013 9:20	0	0.3	19.8	79.9	-0.6	-0.6	42	42	2	2			No Change
Native Soil Extraction Wel	11/20/2013 9:18	0	0.9	19.2	79.9	-0.7	-0.7	44	44	1	1			No Change
Native Soil Extraction Wel	11/20/2013 9:25	5.4	7.7	8.8	78.1	-0.8	-0.8	42	43	2	3			Opened valve 1/2 to 1 turn
Native Soil Extraction Wel	11/20/2013 9:23	0.1	0.5	19.3	80.1	-0.6	-0.6	41	41	2	2			No Change
Native Soil Extraction Wel	11/20/2013 9:29	0	0.4	19.8	79.8	-0.6	-0.5	40	40	2	22			No Change
Native Soil Extraction Wel	11/20/2013 9:27	0.5	1.8	17.8	79.9	-0.8	-0.8	40	40	2	2			No Change
Trench Well TD-1	11/20/2013 7:48	8.8	20.5	0.8	69.9	0	0	46	47	1	2			Opened valve 1/2 to 1 turn
Trench Well TR-1	11/20/2013 8:12	2.9	5.3	8.9	82.9	-1.1	-1.1	46	46	3	1			Closed valve 1/2 to 1 turn
Trench Well TR-2	11/20/2013 7:53	4.3	7.9	9	78.8	-1	-1	42	43	2	1			Closed valve 1/2 turn or less
Trench Well TR-3	11/20/2013 8:53	4	6.6	11.2	78.2	-1.2	-1.2	35	35	5	1			Closed valve > 1 turn
Trench Well TR-4	11/20/2013 8:39	4.2	7.9	8.8	79.1	-1.1	-1.1	35	35	4	1			Closed valve > 1 turn
Trench Well TR-5	11/20/2013 8:29	3.4	6.6	10.8	79.2	-1.1	-1.1	35	35	2	1			Closed valve 1/2 to 1 turn
Trench Well TR-6	11/20/2013 8:25	0	0.6	20.7	78.7	-1.1	-1.1	40	41	4	0			Closed valve > 1 turn; Valve 100% Closed
Trench Well TR-7	11/20/2013 8:33	3.9	6.9	10	79.2	-1.1	-1.1	36	37	2	1			Closed valve > 1 turn
Well with minimum temperature during reporting period														
Trench Well TR-4	11/20/2013 8:39	Init = 35 Adj = 35												
Extraction Well 001	11/20/2013 8:50	Init = 35 Adj = 35												
Trench Well TR-3	11/20/2013 8:53	Init = 35 Adj = 35												
Trench Well TR-5	11/20/2013 8:29	Init = 35 Adj = 35												
Extraction Well 004	11/20/2013 8:36	Init = 35 Adj = 35												
Well with maximum temperature during reporting period														
Native Soil Extraction Wel	11/20/2013 9:10	Init = 51 Adj = 51												
Field Technician and Weather Conditions														

Table 4 (continued). Landfill Gas Data, Fourth Quarter 2013 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
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	11/20/13	38	29.89	Partly Cloudy	Calm	S								

% 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.
scfm Standard cubic feet per minute.

Table 4 (continued): Landfill Gas Data, Fourth Quarter 2013 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	11/20/2013 7:36	0.6	1.1	19	79.3	-0.9	-0.9	48	48	22	22			No Change
Blower Outlet	11/20/2013 7:41	0	0.1	21.2	78.7	0	0	47	45	49	49			No Change
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	11/20/13	38	29.89	Partly Cloudy	Calm	S								

% 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 C

Summary of Previous Quarter Monitoring Results (Q3, Q2 and Q1 2013)

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Q3 - JULY 2013 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Groundwater Monitoring Wells, July 24, 2013
Hansville Landfill, Kitsap County, Washington

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	101.26	265.64
MW-6	332.0	332.7	260	245	75.27	257.43
MW-7	344.3	346.0	259	244	85.59	260.41
MW-12I	245.6	248.1	217	207	10.59	237.51
MW-13D	258.1	260.4	205	195	11.86	248.54
MW-14	338.6	341.1	262	247	83.44	257.66

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

Table A-2. Hansville Landfill Groundwater Data, Third Quarter 2013 Monitoring Event - July 24, 2013

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)		8.63	0.76	--	2.01	0.81	0.77	2.39	--
pH (units)		7.21	7.31	--	6.60	6.90	6.85	6.97	--
Specific Conductivity (uS)		87	229	--	223	137	142	196	--
Temperature (degrees C)		10.59	15.8	--	11.9	10.3	10.54	14.64	--
Redox (Mv) **		-306.4	-350.9	--	-233.4	-314.4	-333.5	-361.3	--
Conventional Parameters (mg/L, unless otherwise shown)									
Alkalinity		55	130	130	180 B	100	89	130	--
Ammonia (As N)		< 0.03 U	< 0.03 UH	< 0.03 UH	< 0.03 UH	< 0.03 U	< 0.03 U	< 0.03 U	--
Bicarbonate		55	130	130	180 B	100	89	130	--
Carbonate		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	--
Chloride		3.5	19	19	2.6	4.5	7.5	7.7	--
Nitrate (As N)		0.72	2.9	2.9	0.81	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--
Sulfate		8.6	23	23	6.2	7.5	18	18	--
Total Organic Carbon (TOC)		< 1 U	< 1 U	1.2	1.6	2.6	< 1 U	1.2	--
Orthophosphate (As P)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00180	0.00259	0.00267	0.00096	0.00191	0.00330	0.0184	--
Manganese	2.24	< 0.001 U	0.370	0.410	< 0.001 U	0.051	0.034	2.5	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.									
Vinyl chloride	0.025	< 0.020 U	0.28	0.26	< 0.020 U	0.16	< 0.020 U	0.25	--

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.

B Analyte was detected in the blank.

U Compound not detected at reporting limit.

H Compound was analyzed outside the holding time (due to sample reanalysis by Test America)

** Redox field meter reading are suspect due to poor Eh probe response, and should only be used for relative comparisons.

Table A-3. Hansville Landfill Surface Water Data, Third Quarter 2013 Monitoring Event - July 11, 2013

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		9.53	10.25	6.9	8.1	--
pH (units)		7.43	6.85	6.85	6.4	--
Specific Conductivity (uS)		204	423	144	147	--
Temperature (degrees C)		12.0	12.1	13.8	12.4	--
Redox (Mv)		80	94	34	123	--
Conventional Parameters (mg/L, unless otherwise shown)						
Alkalinity		84	180	83	61	--
Ammonia (As N)		< 0.03 U	< 0.03 U	0.053	< 0.03 U	--
Bicarbonate		84	180	83	61	--
Carbonate		< 5 U	< 5 U	< 5 U	< 5 U	--
Chloride		4.8	18	4.9	4.3	--
Nitrate (As N)		1.8	0.5 U	0.5 U	0.6	--
Nitrite (As N)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--
Sulfate		11	< 1 U	4.2	5.7	--
Total Organic Carbon (TOC)		1.6	3.6	13	7.6	--
Orthophosphate (As P)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.0013	0.00157	0.00420	0.0014	
Manganese	2.24	< 0.001 U	0.031	0.370	0.008	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.						
Vinyl chloride	0.025	0.032	< 0.020 U	< 0.020 U	< 0.020 U	--

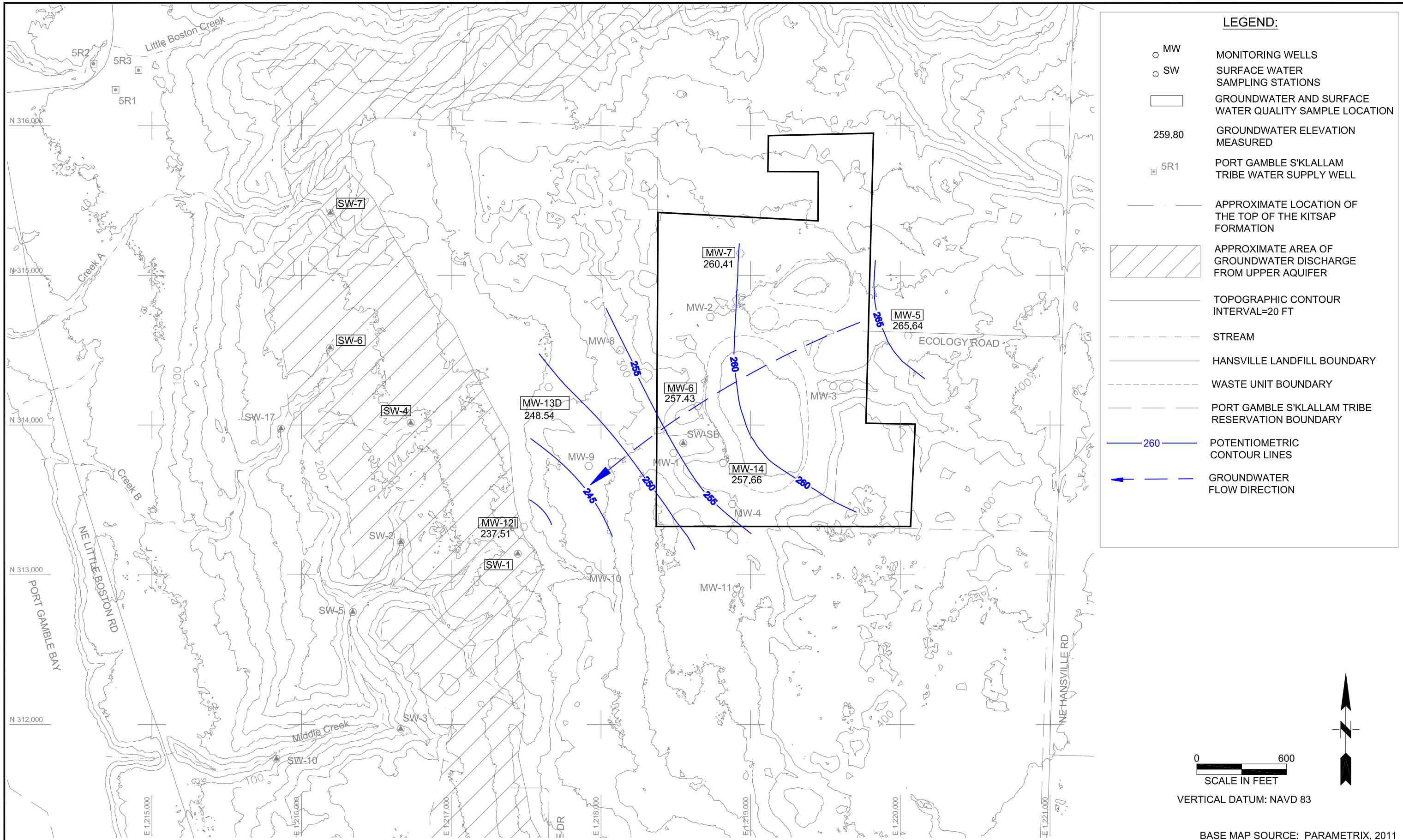
1 SCLs defined in August 2011 consent decree/cleanup action plan.

-- Not Tested.

Shaded results exceed site cleanup levels.

B Analyte was detected in the blank.

U Compound not detected at reporting limit.



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PROJECT NO. 042110017.02	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS JULY 24, 2013	DATE AUG 2013
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Hansville LF - Probe Data - 09/01/2013 through 09/30/2013

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	9/4/2013 9:39	0	1.1	20.4	78.5			-0.1	
Probe 2 Deep	9/4/2013 9:55	0	0.2	20.3	79.5			-0.26	
Probe 2 Middle	9/4/2013 9:51	0	0.8	19.6	79.6			-0.21	
Probe 2 Shallow	9/4/2013 9:48	0	0.1	20.6	79.3			-0.08	
Probe 3	9/4/2013 10:01	0	1.1	20	78.9			-0.04	
Probe 4	9/4/2013 10:13	0	1.4	19.8	78.8			-0.05	
Probe 5	9/4/2013 9:33	0	1	20.3	78.7			-0.14	
Probe 6	9/4/2013 9:27	0	1.9	19.2	78.9			-0.05	
Probe 7	9/4/2013 10:07	0	0.3	20.8	78.9			-0.06	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
BB	09/04/13	64	29.62	Cloudy	Calm	S			

Hansville LF - Well Data - 09/01/2013 through 09/30/2013

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	9/4/2013 8:09	9.5	10	0.3	80.2	-0.2	-0.2	66	66	2	2			No Change
Extraction Well 002	9/4/2013 8:06	4.5	10	6.9	78.6	-0.3	-0.3	63	63	2	2			No Change
Extraction Well 003	9/4/2013 8:03	16.8	10.4	0.5	72.3	-0.3	-0.3	66	66	2	2			No Change
Extraction Well 004	9/4/2013 7:57	7.2	10	6.8	76	-0.4	-0.4	62	62	2	2			No Change
Extraction Well 005	9/4/2013 7:35	3.6	8	8.9	79.5	-0.2	-0.2	61	61	1	1			No Change
Extraction Well 006	9/4/2013 7:28	0	0.3	20.9	78.8	-0.1	-0.1	62	61	1	1			No Change
Extraction Well 007	9/4/2013 7:24	5.3	15.2	0.1	79.4	0	0	65	64	2	2			No Change
Extraction Well 008	9/4/2013 7:18	10.9	14.8	0	74.3	-0.2	-0.2	57	57	3	2			No Change
Extraction Well 009	9/4/2013 7:42	3.1	12.1	3	81.8	-0.4	-0.4	67	67	2	2			No Change
Extraction Well 010	9/4/2013 8:15	5.6	5.8	6.8	81.8	-0.3	-0.2	60	60	1	1			No Change
Extraction Well 011	9/4/2013 8:18	7.9	4	5	83.1	-0.3	-0.3	64	64	1	1			No Change
Extraction Well 012	9/4/2013 7:45	16.5	3.3	1.8	78.4	-0.4	-0.4	65	65	2	2			No Change
Extraction Well 013	9/4/2013 7:39	4.2	7	7.3	81.5	-0.3	-0.3	64	64	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:27	0	4.7	14.6	80.7	-0.4	-0.4	68	67	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:25	0	4.7	14.8	80.5	-0.4	-0.4	68	68	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:32	0	1.7	19	79.3	-0.3	-0.3	71	70	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:31	0	2.6	16.7	80.7	-0.3	-0.2	70	69	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:37	0	0.1	20.8	79.1	-0.2	-0.2	68	68	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:36	0	0.4	20.4	79.2	-0.2	-0.2	65	64	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:42	0	2.8	17.6	79.6	-0.4	-0.4	72	71	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:41	0	3.3	16.9	79.8	-0.5	-0.4	68	68	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:47	0	0.2	20.8	79	-0.1	-0.1	75	75	1	1			No Change
Native Soil Extraction Wel	9/4/2013 8:46	0	2.2	18.1	79.7	-0.5	-0.5	67	67	1	1			No Change
Trench Well TD-1	9/4/2013 7:12	4.3	21.7	0	74	0	0	68	66	1	1			No Change
Trench Well TR-1	9/4/2013 7:32	0	0.2	20.8	79	-0.2	-0.2	60	60	1	1			No Change
Trench Well TR-2	9/4/2013 7:21	15.8	16	0.9	67.3	-0.1	-0.1	60	59	5	5			No Change
Trench Well TR-3	9/4/2013 8:12	3.3	3.4	13	80.3	-0.2	-0.2	59	59	3	3			No Change
Trench Well TR-4	9/4/2013 7:59	10.1	15.8	2.2	71.9	-0.4	-0.4	63	63	3	3			No Change
Trench Well TR-5	9/4/2013 7:50	6.8	9.5	7.8	75.9	-0.4	-0.4	64	65	2	2			No Change
Trench Well TR-6	9/4/2013 7:48	17.9	10.4	0.9	70.8	-0.4	-0.4	62	62	2	2			No Change
Trench Well TR-7	9/4/2013 7:53	13.4	11.9	1	73.7	-0.4	-0.4	62	63	3	3			No Change
Well with minimum temperature during reporting period														
Extraction Well 008	9/4/2013 7:18	Init = 57 Adj = 57												
Well with maximum temperature during reporting period														
Native Soil Extraction Wel	9/4/2013 8:47	Init = 75 Adj = 75												
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	09/04/13	64	29.56	Cloudy	Calm	S								

Hansville LF - Sample Port Data - 09/01/2013 through 09/30/2013

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	9/4/2013 8:52	6.5	8.6	8.8	76.1	-0.6	-0.6	64	65	32	32			No Change
Blower Outlet	9/4/2013 8:56	6.9	9.1	8.1	75.9	0.2	0.2	104	104	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	09/04/13	64	29.56	Cloudy	Calm	S								

Q2 - APRIL 2013 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Groundwater Monitoring Wells, April 4, 2013
Hansville Landfill, Kitsap County, Washington

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	101.47	265.43
MW-6	332.0	332.7	260	245	75.14	257.56
MW-7	344.3	346.0	259	244	86.00	260.00
MW-12I	245.6	248.1	217	207	9.18	238.92
MW-13D	258.1	260.4	205	195	12.18	248.22
MW-14	338.6	341.1	262	247	83.15	257.95

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

Table A-2. Hansville Landfill Groundwater Data, Second Quarter 2013 Monitoring Event - April 4, 2013

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)		8.17	1.01	--	1.97	0.85	0.30	0.91	--
pH (units)		7.43	7.05	--	6.86	7.31	7.57	7.03	--
Specific Conductivity (uS)		108	316	--	246	177	181	273	--
Temperature (degrees C)		12.5	16.0	--	13.0	2.5	11.2	14.4	--
Redox (Mv)		79	30	--	99	16	-40	-12	--
Conventional Parmeters (mg/L, unless otherwise shown)									
Alkalinity		54	150	150	160	110	80	150	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	--
Bicarbonate		54	150	150	160	110	80	150	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		2.2	20	21	2.4	4.4	7.1	14	--
Nitrate (As N)		0.59	0.46 J	0.46 J	0.63	0.5 U	0.5 U	0.092 J	--
Nitrite (As N)		0.5 U	0.27 J	0.28 J	0.087 J	0.5 U	0.5 U	0.5 U	--
Sulfate		7.9	28	28	5.1	7.2	18	23	--
Total Organic Carbon (TOC)		0.67 JB	1.3 B	1.4 B	1.8 B	2.5 B	0.81 JB	1.5 B	--
Orthophoshate (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	0.00185	0.0033	0.0033	0.00104	0.00192	0.00342	0.0213	--
Manganese	2.24	0.00140	0.350	0.360	0.360	0.062	0.042	2.7	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.									
Vinyl chloride	0.025	0.02 U	0.17	0.20	0.02 U	0.16	0.02 U	0.25	0.02 U

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

-- Not Tested.

Shaded results exceed site cleanup levels.

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

J Result is an estimate below the reporting limit.

U Compound not dectected at reporting limit.

B Analyte was detected in the blank.

Table A-3. Hansville Landfill Surface Water Data, Second Quarter 2013 Monitoring Event - April 4, 2013

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		8.1	7.2	6.9	8.8	--
pH (units)		7.19	7.34	7.98	7.11	--
Specific Conductivity (uS)		154	291	90	100	--
Temperature (degrees C)		9.8	9.3	9.7	8.9	--
Redox (Mv)		146	171	142	179	--
Conventional Parmeters (mg/L, unless otherwise shown)						
Alkalinity		48	150	82	43	--
Ammonia (As N)		0.03 U	0.03 U	0.03 U	0.03 U	--
Bicarbonate		48	150	82	43	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		4.2	15	4.0	3.6	--
Nitrate (As N)		1.9	1.2	0.13 J	0.7	--
Nitrite (As N)		0.5 U	0.085 J	0.5 U	0.099 J	--
Sulfate		12	23	6.2	7.0	--
Total Organic Carbon (TOC)		2.3	6.9	14	8.8	--
Orthophoshate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00145	0.0018	0.00206	0.00119	--
Manganese	2.24	0.001 U	0.033	0.041	0.0044	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.						
Vinyl chloride	0.025	0.02 U	0.0092 J	0.02 U	0.02 U	0.02 U

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

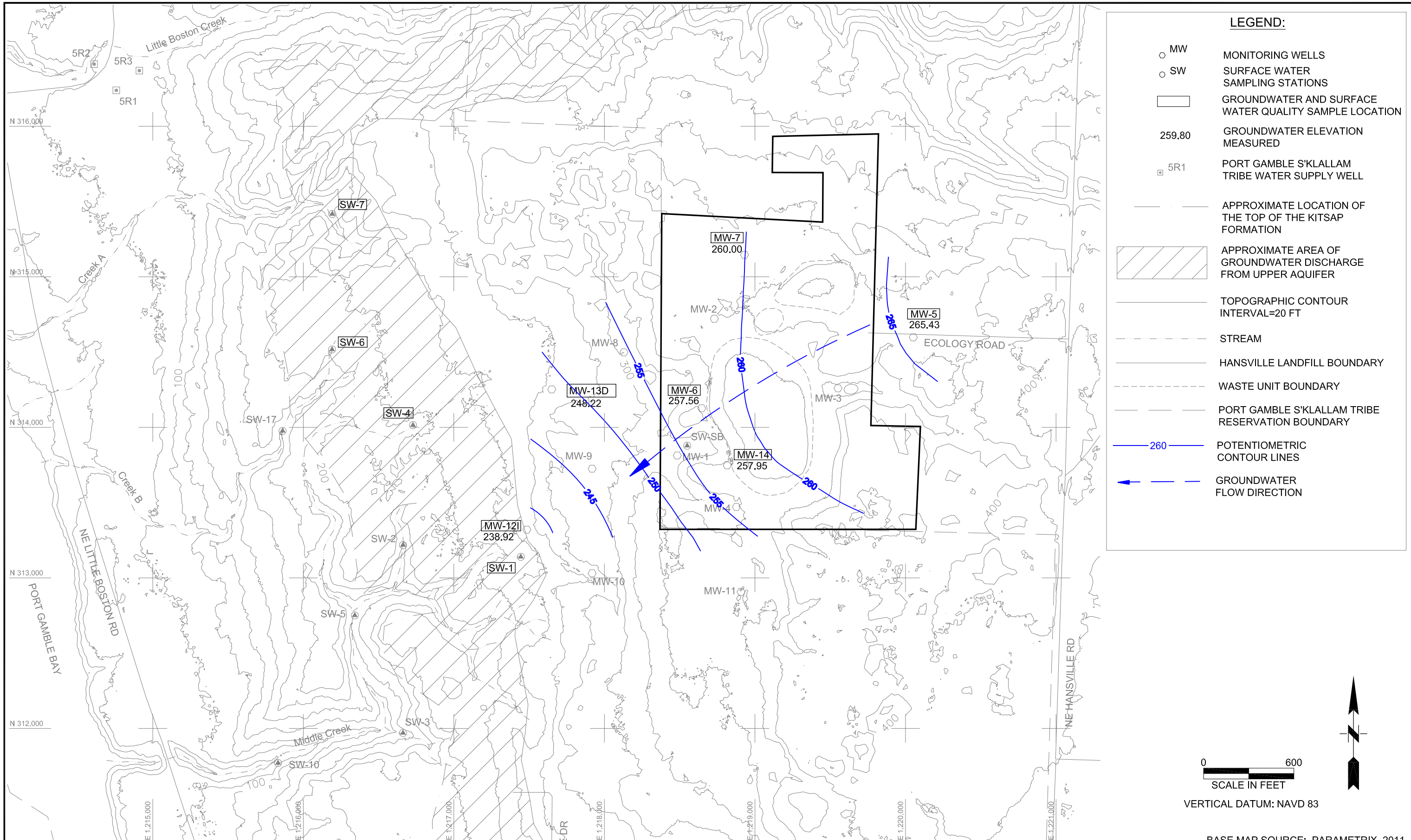
-- Not Tested.

Shaded results exceed site cleanup levels.

J Result is an estimate below the reporting limit.

U Compound not dectected at reporting limit.

B Analyte was detected in the blank.



LEGEND:

- MW — MONITORING WELLS
- SW — SURFACE WATER SAMPLING STATIONS
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- 259.80 — GROUNDWATER ELEVATION MEASURED
- 5R1 — PORT GAMBLE S'KLALLAM TRIBE WATER SUPPLY WELL
- APPROXIMATE LOCATION OF THE TOP OF THE KITSAP FORMATION
- APPROXIMATE AREA OF GROUNDWATER DISCHARGE FROM UPPER AQUIFER
- TOPOGRAPHIC CONTOUR INTERVAL=20 FT
- STREAM
- HANSVILLE LANDFILL BOUNDARY
- WASTE UNIT BOUNDARY
- PORT GAMBLE S'KLALLAM TRIBE RESERVATION BOUNDARY
- 260 — POTENTIOMETRIC CONTOUR LINES
- GROUNDWATER FLOW DIRECTION

BASE MAP SOURCE: PARAMETRIX, 2011

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PROJECT NO. 042110017.02	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS APRIL 4, 2013	DATE MAY 2013
SCALE AS SHOWN	CHK BY D.V.	HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Hansville LF - Probe Data - 05/01/2013 through 05/31/2013

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	5/15/2013 10:13	0	1.4	18.6	80			-0.88	
Probe 2 Deep	5/15/2013 10:28	0	0.3	20.1	79.6			0.24	
Probe 2 Middle	5/15/2013 10:22	0	0.7	18.9	80.4			-0.24	
Probe 2 Shallow	5/15/2013 10:19	0	0.8	19.4	79.8			0.36	
Probe 3	5/15/2013 10:48	0	1	20	79			-0.25	
Probe 4	5/15/2013 10:42	0	1.5	19.5	79			0.02	
Probe 5	5/15/2013 10:09	0	1.4	19.1	79.5			-4.19	
Probe 6	5/15/2013 8:24	0	4.6	14.6	80.8			0.09	
Probe 7	5/15/2013 10:36	0	1.2	19.5	79.3			-0.01	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
BB	05/15/13	62	29.64	Partly Cloudy	Calm	N			

Hansville LF - Well Data - 05/01/2013 through 05/31/2013

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	5/15/2013 9:23	7.6	10.2	0.9	81.3	-0.1	-0.1	64	64	3	2			Closed valve 1/2 turn or less
Extraction Well 002	5/15/2013 9:19	4.3	12.1	4.1	79.5	-0.2	-0.2	62	62	2	1			Closed valve 1/2 turn or less
Extraction Well 003	5/15/2013 9:16	13.9	9.6	2.5	74	-0.2	-0.2	63	63	2	2			No Change
Extraction Well 004	5/15/2013 9:10	7.6	12	3.7	76.7	-0.2	-0.2	63	63	2	1			Closed valve 1/2 turn or less
Extraction Well 005	5/15/2013 9:38	4.7	13.9	1.8	79.6	-0.1	-0.1	63	63	1	1			No Change
Extraction Well 006	5/15/2013 8:42	0.5	4.1	15.1	80.3	-0.2	-0.1	64	64	1	0			Closed valve 1/2 to 1 turn; Valve 100% Closed
Extraction Well 007	5/15/2013 8:36	1.1	13.9	0	85	0	0	67	67	1	1			No Change
Extraction Well 008	5/15/2013 8:29	9.4	13.9	1.2	75.5	-0.2	-0.2	63	63	2	2			Closed valve 1/2 turn or less
Extraction Well 009	5/15/2013 8:54	2.6	10.8	4.8	81.8	-0.2	-0.2	63	62	2	1			Closed valve 1/2 turn or less
Extraction Well 010	5/15/2013 9:29	6.5	8	2.1	83.4	-0.1	-0.1	64	64	1	1			No Change
Extraction Well 011	5/15/2013 9:32	8.6	5.9	1.8	83.7	-0.1	-0.1	63	63	2	1			Closed valve 1/2 to 1 turn
Extraction Well 012	5/15/2013 8:57	15.2	3.8	1.6	79.4	-0.2	-0.2	65	65	2	2			No Change
Extraction Well 013	5/15/2013 8:50	5.6	11.6	1.3	81.5	-0.1	-0.1	64	64	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:44	0	4.6	14.4	81	-0.1	-0.1	71	70	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:42	0	4.5	14.9	80.6	-0.1	-0.1	70	70	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:48	0	1.3	19.1	79.6	0	0	73	73	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:46	0	2.1	17.4	80.5	0	0	71	70	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:52	0	3.4	16.2	80.4	0	0	77	76	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:51	0	3.3	16.2	80.5	0	0	75	74	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:57	0	2.7	17.6	79.7	-0.2	-0.2	65	64	1	1			No Change
Native Soil Extraction Wel	5/15/2013 9:56	0	2.9	17.4	79.7	-0.2	-0.2	68	67	1	1			No Change
Native Soil Extraction Wel	5/15/2013 10:02	0	1.2	19.2	79.6	0	0	76	76	1	1			No Change
Native Soil Extraction Wel	5/15/2013 10:00	0	2.4	17.5	80.1	-0.2	-0.2	64	64	2	2			No Change
Trench Well TD-1	5/15/2013 8:22	3.9	20.1	0	76	0	0	64	64	3	3			Closed valve 1/2 turn or less
Trench Well TR-1	5/15/2013 8:48	2.2	12.5	4.1	81.2	-0.1	-0.1	59	59	1	1			No Change
Trench Well TR-2	5/15/2013 8:32	12.8	13.4	1.7	72.1	-0.1	-0.1	63	62	6	4			Closed valve 1/2 to 1 turn
Trench Well TR-3	5/15/2013 9:26	7.8	7.6	2.3	82.3	-0.1	-0.1	63	63	2	2			No Change
Trench Well TR-4	5/15/2013 9:12	10.1	14.7	0.4	74.8	-0.1	-0.1	63	63	7	3			Closed valve > 1 turn
Trench Well TR-5	5/15/2013 9:03	7.3	11.3	4.5	76.9	-0.1	-0.1	63	63	3	2			Closed valve 1/2 to 1 turn
Trench Well TR-6	5/15/2013 9:00	17.2	9	1.3	72.5	-0.1	-0.1	61	61	2	2			No Change
Trench Well TR-7	5/15/2013 9:07	13.6	11.5	1.3	73.6	-0.1	-0.1	65	65	6	3			Closed valve > 1 turn
Well with minimum temperature during reporting period														
Trench Well TR-1	5/15/2013 8:48	Init = 59 Adj = 59												
Well with maximum temperature during reporting period														
Native Soil Extraction Wel	5/15/2013 9:52	Init = 77 Adj = 76												
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	05/15/13	62	29.67	Partly Cloudy	Calm	N								

Hansville LF - Sample Port Data - 05/01/2013 through 05/31/2013

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	5/15/2013 8:15	7.9	11	4.7	76.4	-0.3	-0.2	58	57	48	48			No Change
Blower Outlet	5/15/2013 8:17	7.1	10.1	6.2	76.6	0.2	0.2	106	107	72	72			No Change
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	05/15/13	62	29.67	Partly Cloudy	Calm	N								

Q1 - JANUARY 2013 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Groundwater Monitoring Wells, January 3, 2013
Hansville Landfill, Kitsap County, Washington

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	101.95	264.95
MW-6	332.0	332.7	260	245	75.35	257.35
MW-7	344.3	346.0	259	244	86.57	259.43
MW-12I	245.6	248.1	217	207	10.10	238.00
MW-13D	258.1	260.4	205	195	11.56	248.84
MW-14	338.6	341.1	262	247	82.30	258.80

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

Table A-2. Hansville Landfill Groundwater Data, First Quarter 2013 Monitoring Event - January 3, 2013

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)		6.88	0.29	--	1.24	0.03	0.17	0.22	--
pH (units)		7.27	7.08	--	6.75	7.10	7.46	6.83	--
Specific Conductivity (uS)		109	231	--	253	174	187	257	--
Temperature (degrees C)		10.2	16.0	--	11.9	11.0	10.6	13.6	--
Redox (Mv)		87.1	80.1	--	174	50	-40.8	-30.7	--
Conventional Parmeters (mg/L, unless otherwise shown)									
Alkalinity		57 B	140 B	140 B	160 B	110 B	97 B	150 B	--
Ammonia (As N)		0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.026 J	--
Bicarbonate		57 B	140 B	140 B	160 B	110 B	97 B	150 B	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		3.5	9.5	9.9	2.2	3.4	7.3	6.0	--
Nitrate (As N)		0.61 H	0.39 JH	0.39 JH	0.80 H	0.5 UH	0.5 UH	0.5 UH	--
Nitrite (As N)		0.5 UH	0.056 JH	0.53 JH	0.5 UH	0.5 UH	0.5 UH	0.5 UH	--
Sulfate		9.0	21	22	5.2	6.6	19	21	--
Total Organic Carbon (TOC)		0.74 J	1.2	1.2	1.4	2.6	0.76 J	1.1	--
Orthophoshate (As P)		0.5 UH	0.5 UH	0.5 UH	0.5 UH	0.5 UH	0.5 UH	0.5 UH	--
Dissolved Metals (mg/L)									
Arsenic	0.005	0.00207	0.0035	0.0036	0.00114	0.00212	0.0034	0.0202	--
Manganese	2.24	0.00046 J	0.280	0.290	0.001 U	0.053	0.039	2.8	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.									
1,1-Dichloroethane		1.0 U	1.4	1.2	1.0 U	1.0 U	1.0 U	0.55 J	1.0 U
Dichlorofluromethane		1.0 U	0.43 J	0.41 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethyl ether		1.0 U	3.1	2.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene - total		1.0 U	1.0 U	1.0 U	1.0 U	0.94 J	1.0 U	5.5	1.0 U
cis-1,2-Dichloroethene		1.0 U	1.0 U	1.0 U	1.0 U	0.94 J	1.0 U	4.5	1.0 U
trans-1,2-Dichloroethene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U
Vinyl chloride	0.025	0.02 U	0.23	0.22	0.02 U	0.11	0.02 U	0.25	0.02 U

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

-- Not Tested.

Shaded results exceed site cleanup levels.

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

J Result is an estimate below the reporting limit.

U Compound not dectected at reporting limit.

B Analyte was detected in the blank.

H Sample was not analyzed within method specific holding time (48 hours).

Table A-3. Hansville Landfill Surface Water Data, First Quarter 2013 Monitoring Event - Janaury 3, 2013

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		9.15	8.31	8.70	9.10	--
pH (units)		7.61	6.63	6.77	7.07	--
Specific Conductivity (uS)		218	310	123	141	--
Temperature (degrees C)		7.4	5.7	4.0	4.1	--
Redox (Mv)		227	161	166	105	--
Conventional Parmeters (mg/L, unless otherwise shown)						
Alkalinity		100 B	140 B	34 B	27 B	--
Ammonia (As N)		0.03 U	0.03 U	0.03 U	0.03 U	--
Bicarbonate		100 B	140 B	34 B	27 B	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		4.9	14	4.1	4.1	--
Nitrate (As N)		1.9 H	1.5 H	0.78 H	1.8 H	--
Nitrite (As N)		0.5 UH	0.5 UH	0.5 UH	0.5 UH	--
Sulfate		12	20	5.9	6.6	--
Total Organic Carbon (TOC)		3.1	9.9	19	12	--
Orthophoshate (As P)		0.5 UH	0.5 UH	0.5 UH	0.5 UH	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.00155	0.00176	0.00168	0.00080	--
Manganese	2.24	0.00044 J	0.056	0.013	0.0019	--
Volatile Organics Compounds (ug/L) - only detected EPA method 8260 compounds as shown.						
Vinyl chloride	0.025	0.02 U	0.0042 J	0.02 U	0.02 U	0.02 U

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

-- Not Tested.

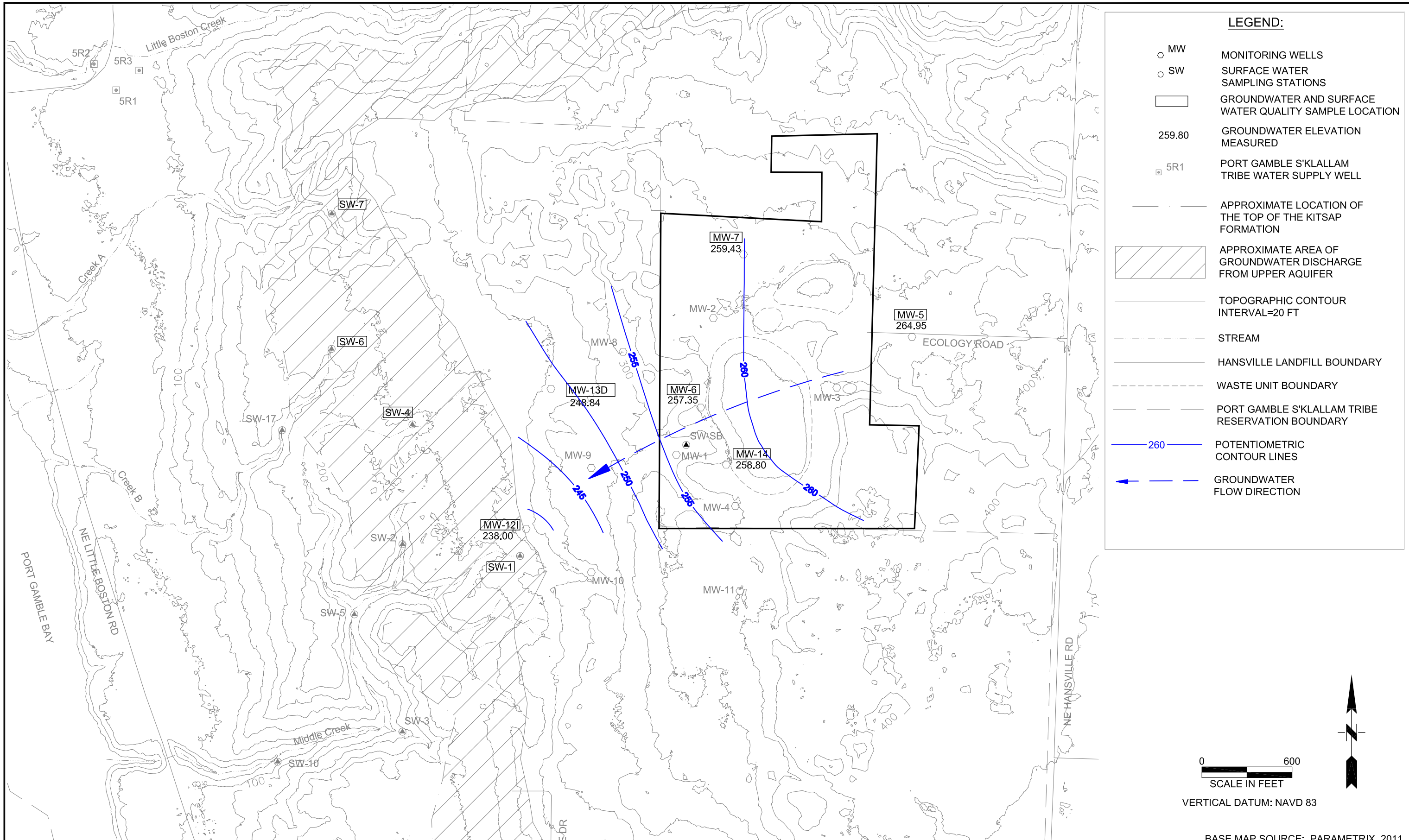
Shaded results exceed site cleanup levels.

J Result is an estimate below the reporting limit.

U Compound not dectected at reporting limit.

B Analyte was detected in the blank.

H Sample was not analyzed within method specific holding time (48 hours).



VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

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PROJECT NO. 042110017.02	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS JANUARY 3, 2013 HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE FEBRUARY 2012
SCALE AS SHOWN	CHK BY D.V.		FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Hansville LF - Probe Data - 02/01/2013 through 02/28/2013

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	2/13/2013 11:13	0	0.8	20	79.2			-0.61	
Probe 2 Deep	2/13/2013 11:29	0	0.2	20.5	79.3			-0.76	
Probe 2 Middle	2/13/2013 11:25	0	0.6	19.6	79.8			-0.74	
Probe 2 Shallow	2/13/2013 11:21	0	0.1	20.6	79.3			-0.32	
Probe 3	2/13/2013 12:24	0	0.5	19.8	79.7			-0.83	
Probe 4	2/13/2013 12:20	0	1.2	18.8	80			-0.29	
Probe 5	2/13/2013 8:27	0	0.8	19.9	79.3			-0.42	
Probe 6	2/13/2013 8:20	0	2.4	17.3	80.3			-0.15	
Probe 7	2/13/2013 12:15	0	0.9	18.9	80.2			-0.24	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
BB	02/13/13	45	29.95	Cloudy	Calm	N			

Hansville LF - Well Data - 02/01/2013 through 02/28/2013

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	2/13/2013 9:58	3.8	3.8	13.7	78.7	-1.1	-1.1	48	48	4	4			Closed valve 1/2 turn or less
Extraction Well 002	2/13/2013 9:53	1.3	3.3	16.1	79.3	-1.2	-1.2	49	49	3	3			No Change
Extraction Well 003	2/13/2013 9:48	12.6	12.5	1	73.9	-1.2	-1.2	52	52	2	2			No Change
Extraction Well 004	2/13/2013 9:41	2.9	4.3	14.4	78.4	-1.1	-1.2	51	51	3	2			Closed valve 1/2 turn or less
Extraction Well 005	2/13/2013 8:59	1.9	9.3	10.4	78.4	-0.9	-0.9	47	47	3	2			Closed valve 1/2 turn or less
Extraction Well 006	2/13/2013 8:49	0.5	1	19.4	79.1	-0.8	-0.8	54	54	2	1			Closed valve 1/2 turn or less
Extraction Well 007	2/13/2013 8:44	0.1	0.3	20.8	78.8	-0.8	-0.8	49	49	3	2			Closed valve 1/2 turn or less
Extraction Well 008	2/13/2013 8:35	11.4	15.3	0.3	73	-0.9	-0.9	48	48	5	5			No Change
Extraction Well 009	2/13/2013 9:15	1.9	9.8	7.4	80.9	-1.1	-1.1	53	53	4	4			Closed valve 1/2 to 1 turn
Extraction Well 010	2/13/2013 10:05	6.4	4.7	8.7	80.2	-1.1	-1.2	51	51	5	3			Closed valve 1/2 to 1 turn
Extraction Well 011	2/13/2013 10:10	0.1	0.3	20.5	79.1	-1.1	-1.1	49	49	3	1			Closed valve 1/2 to 1 turn
Extraction Well 012	2/13/2013 9:25	10.1	2.6	8.7	78.6	-1.1	-1.1	49	49	3	2			Closed valve 1/2 turn or less
Extraction Well 013	2/13/2013 9:05	1	1.6	17.9	79.5	-1	-1	48	48	4	2			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	2/13/2013 10:33	0	3.8	15	81.2	-1.1	-1.1	54	54	4	3			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	2/13/2013 10:31	0	1.5	18.1	80.4	-1.1	-1.1	51	51	2	2			No Change
Native Soil Extraction Wel	2/13/2013 10:40	0	1.3	18.8	79.9	-0.7	-0.7	53	53	2	2			No Change
Native Soil Extraction Wel	2/13/2013 10:37	0	0.3	20.1	79.6	-0.6	-0.6	52	52	2	2			No Change
Native Soil Extraction Wel	2/13/2013 10:45	0	4	15.8	80.2	-1	-1	53	53	4	3			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	2/13/2013 10:43	0	2.8	16.6	80.6	-0.8	-0.8	52	52	3	2			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	2/13/2013 10:51	0	2.7	17.8	79.5	-1.1	-1.1	55	55	3	2			Closed valve 1/2 turn or less
Native Soil Extraction Wel	2/13/2013 10:49	0	3.1	17.6	79.3	-1.1	-1.1	54	54	3	2			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	2/13/2013 10:56	0	1.5	19	79.5	-0.7	-0.7	55	55	4	2			Closed valve 1/2 to 1 turn
Native Soil Extraction Wel	2/13/2013 10:54	0	2.9	17.3	79.8	-1.1	-1.1	54	54	4	2			Closed valve 1/2 to 1 turn
Trench Well TD-1	2/13/2013 8:15	5.7	19.2	0	75.1	-0.3	-0.2	51	51	3	3			
Trench Well TR-1	2/13/2013 8:56	3.6	13.9	2.7	79.8	-0.9	-0.9	44	44	2	2			No Change
Trench Well TR-2	2/13/2013 8:38	14.8	14.8	0.3	70.1	-0.8	-0.8	51	51	4	4			No Change
Trench Well TR-3	2/13/2013 10:02	0.9	3.2	15.9	80	-1.2	-1.2	50	50	3	2			Closed valve 1/2 to 1 turn
Trench Well TR-4	2/13/2013 9:43	7.2	16.1	0	76.7	-1.1	-1.1	54	54	3	3			No Change
Trench Well TR-5	2/13/2013 9:30	13.3	15	0	71.7	-1.1	-1.1	52	52	4	4			Closed valve 1/2 turn or less
Trench Well TR-6	2/13/2013 9:21	12.8	10.7	3.2	73.3	-1.1	-1.1	43	43	3	3			Closed valve 1/2 turn or less
Trench Well TR-7	2/13/2013 9:34	10.9	9.5	6	73.6	-1.1	-1.1	50	50	3	3			No Change
Well with minimum temperature during reporting period														
Trench Well TR-6	2/13/2013 9:21	Init = 43 Adj = 43												
Well with maximum temperature during reporting period														
Native Soil Extraction Wel	2/13/2013 10:51	Init = 55 Adj = 55												
Native Soil Extraction Wel	2/13/2013 10:56	Init = 55 Adj = 55												
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	02/13/13	45	29.93	Cloudy	Calm	N								

Hansville LF - Sample Port Data - 02/01/2013 through 02/28/2013

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	2/13/2013 11:01	4.5	9.5	9	77	-1.2	-1.2	51	51	6	6			No Change
Blower Outlet	2/13/2013 11:04	4.3	9	9.5	77.2	0	0.2	98	98	8	8			No Change
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
BB	02/13/13	45	29.93	Cloudy	Calm	N								

Appendix D

2013 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)	*Probability %*	*Trend*	*Sen's Slope*	*Trend*
MW-05	0.00197	0.00181	0.00213	0.005	—	—	—	—	—
MW-06	0.00310	0.00246	0.00374	0.005	—	—	—	—	—
MW-07	0.00166	0.00013	0.00318	0.005	—	—	—	—	—
MW-12I	0.00204	0.00187	0.00221	0.005	—	—	—	—	—
MW-13D	0.00331	0.00308	0.00355	0.005	—	—	—	—	—
MW-14	0.01893	0.01610	0.02175	0.005	-32	1.68	↓	-0.00001448	N
Vinyl Chloride (µg/L)									
Monitoring Location	*Mean*	*LCL*	*UCL*	*Site Cleanup Level*	**Mann-Kendall Test**			**Sen's Test**	
					Mann-Kendall (S)	*Probability %*	*Trend*	*Sen's Slope*	*Trend*
MW-05	N/A	0.001	0.011	0.025	—		—	—	—
MW-06	0.255	0.170	0.340	0.025	14	18.64	N	0.000289	N
MW-07	N/A	0.001	0.011	0.025	—		—	—	—
MW-12I	0.165	0.107	0.223	0.025	-7	34	N	0	N
MW-13D	0.006	0.001	0.011	0.025	—		—	—	—
MW-14	0.243	0.225	0.260	0.025	-30	2.31	↓	-0.0000895	N

Footnotes:

N = 4 (Mean, LCL, UCL); 12 (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*

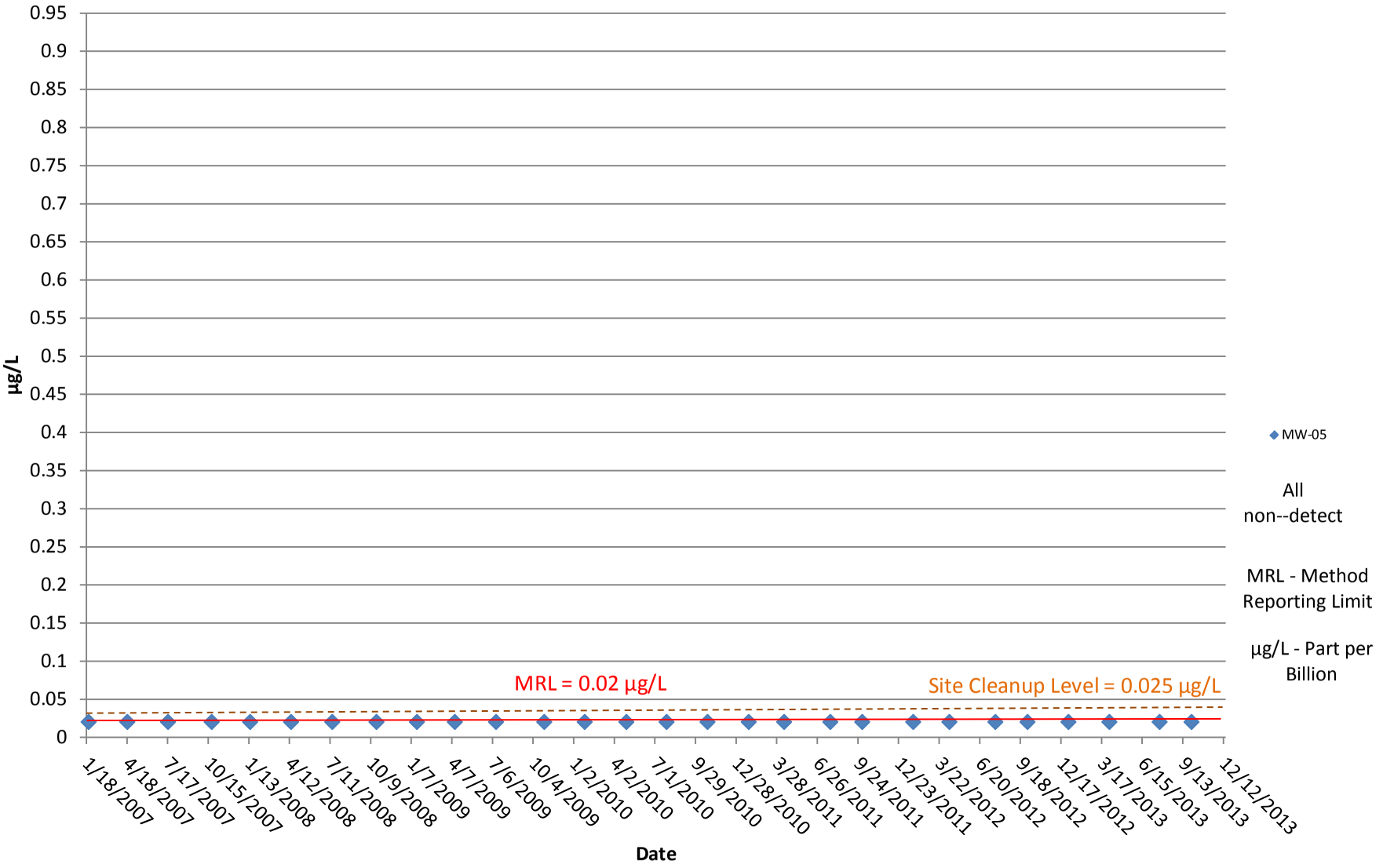
Table D-2: Statistical Data Set (N=12)

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
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
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
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

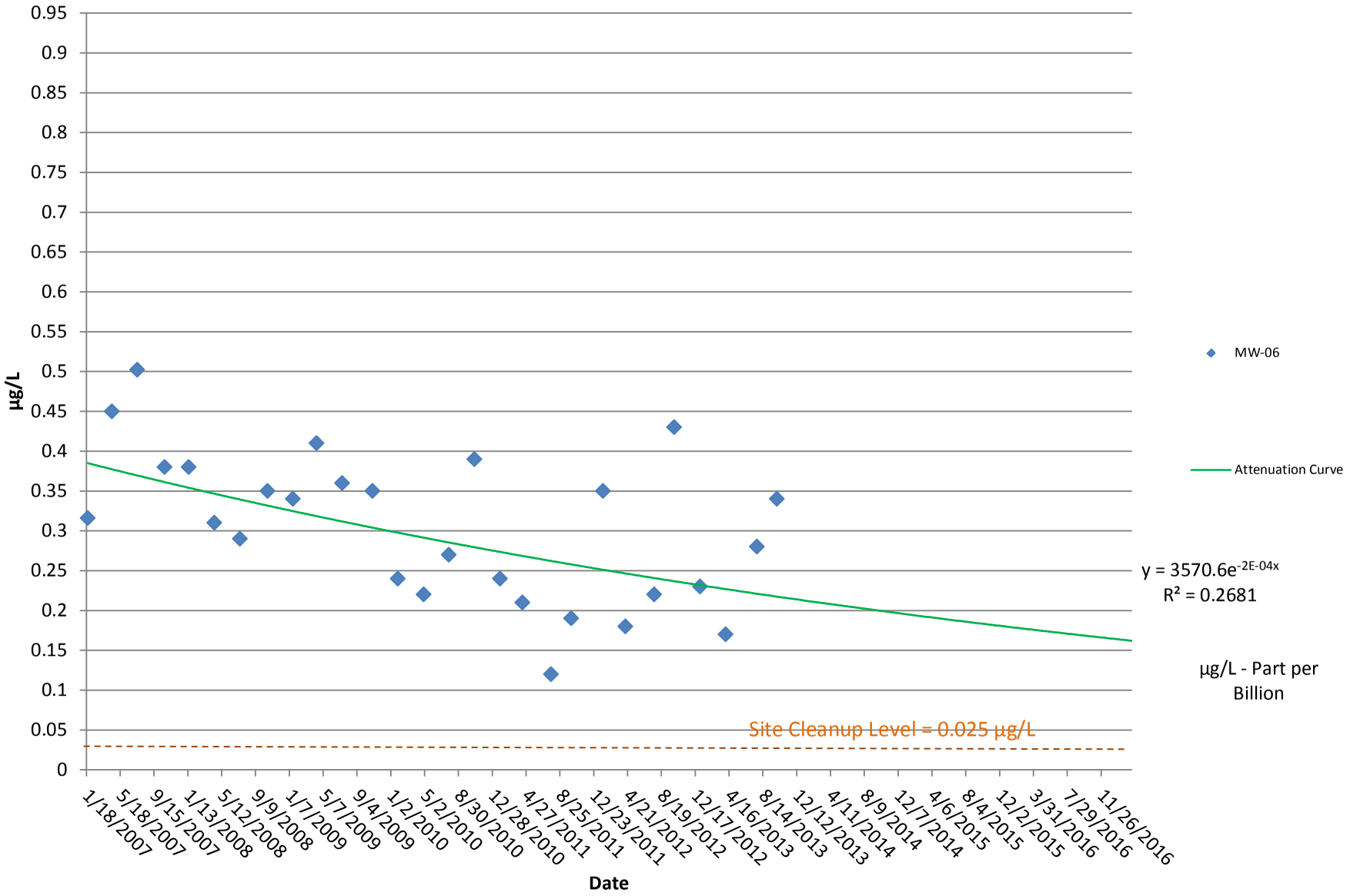
Table D-2: Statistical Data Set (N=12)

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

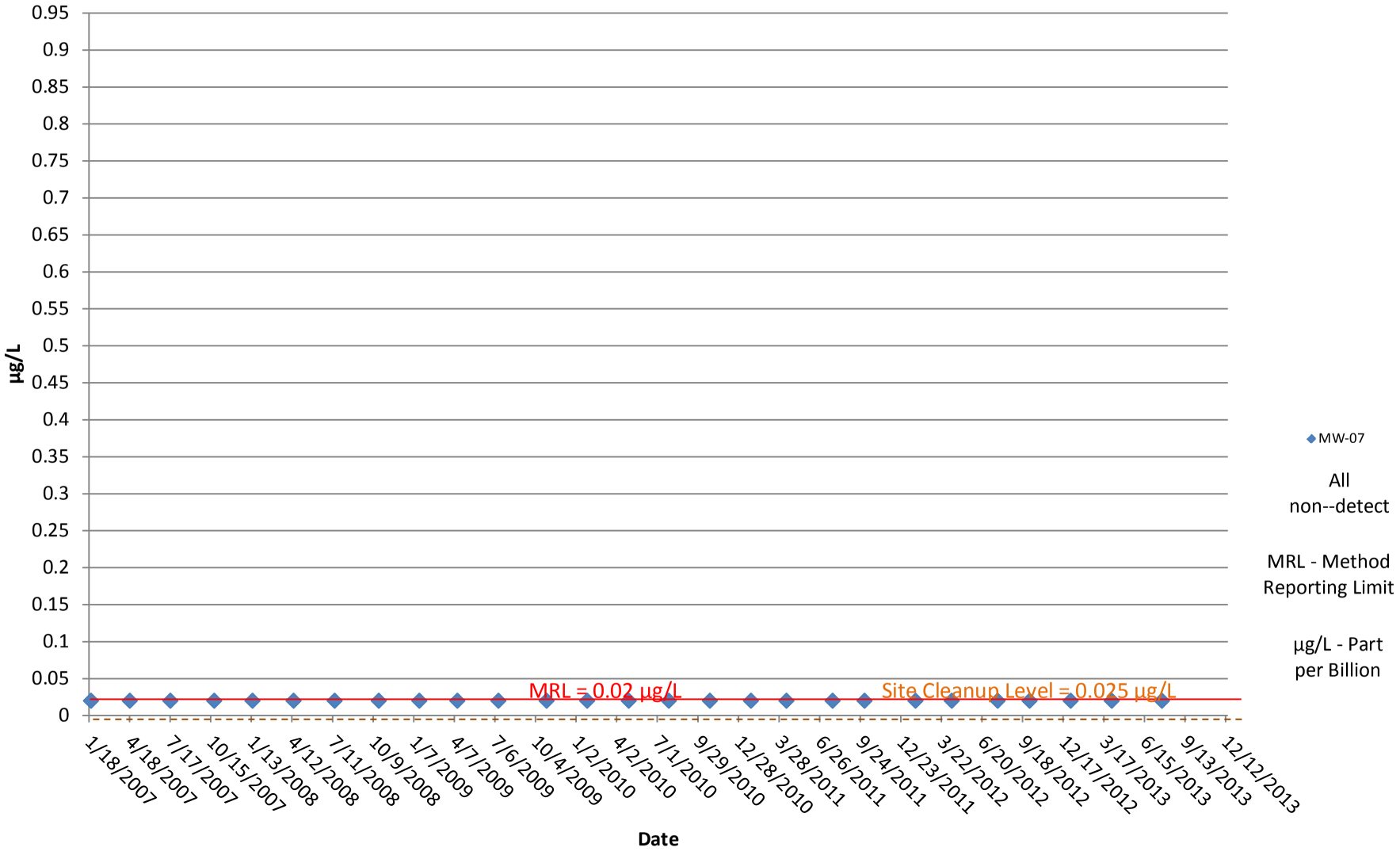
Vinyl Chloride , MW-05
Hansville Landfill



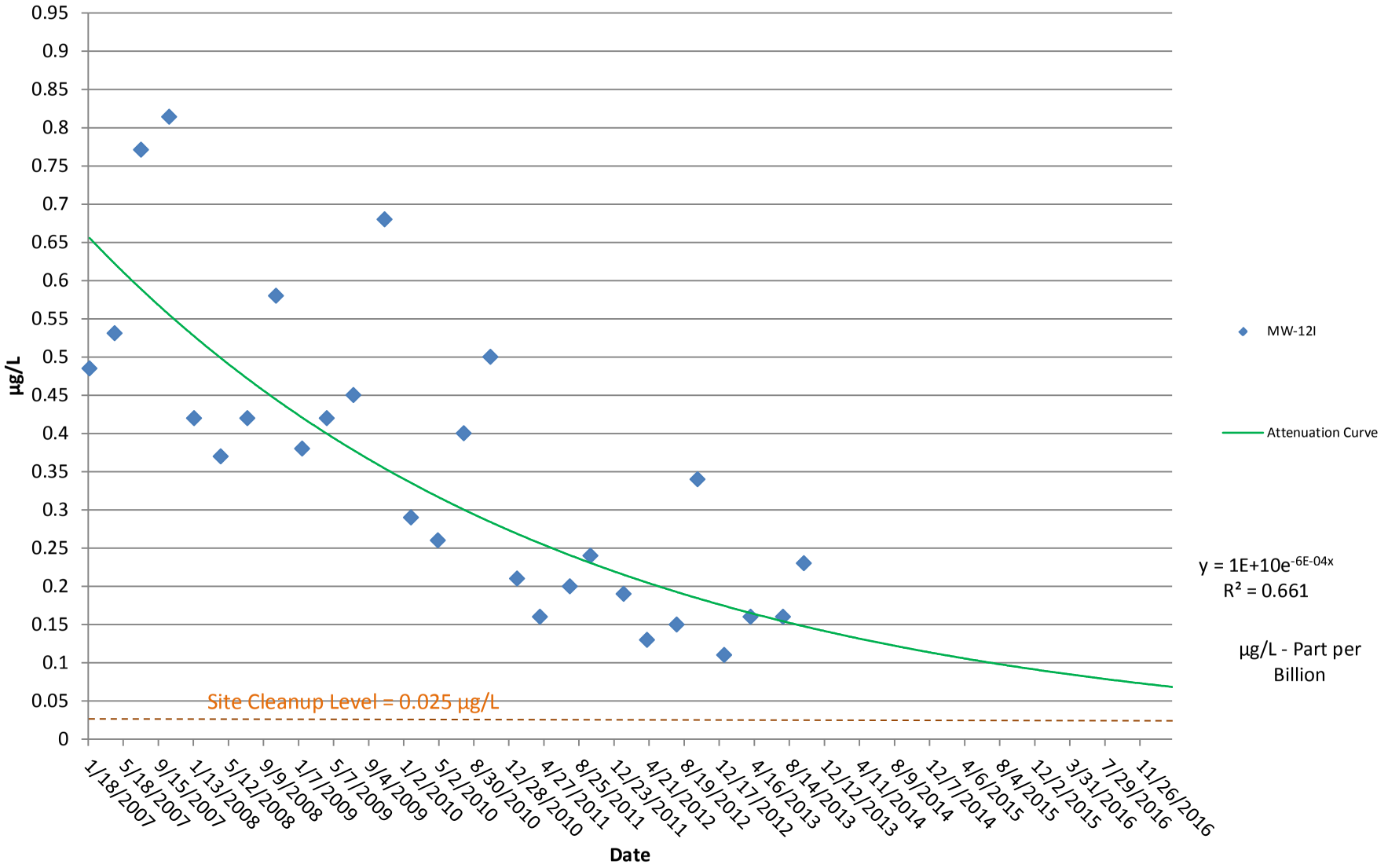
Vinyl Chloride, MW-06
Hansville Landfill



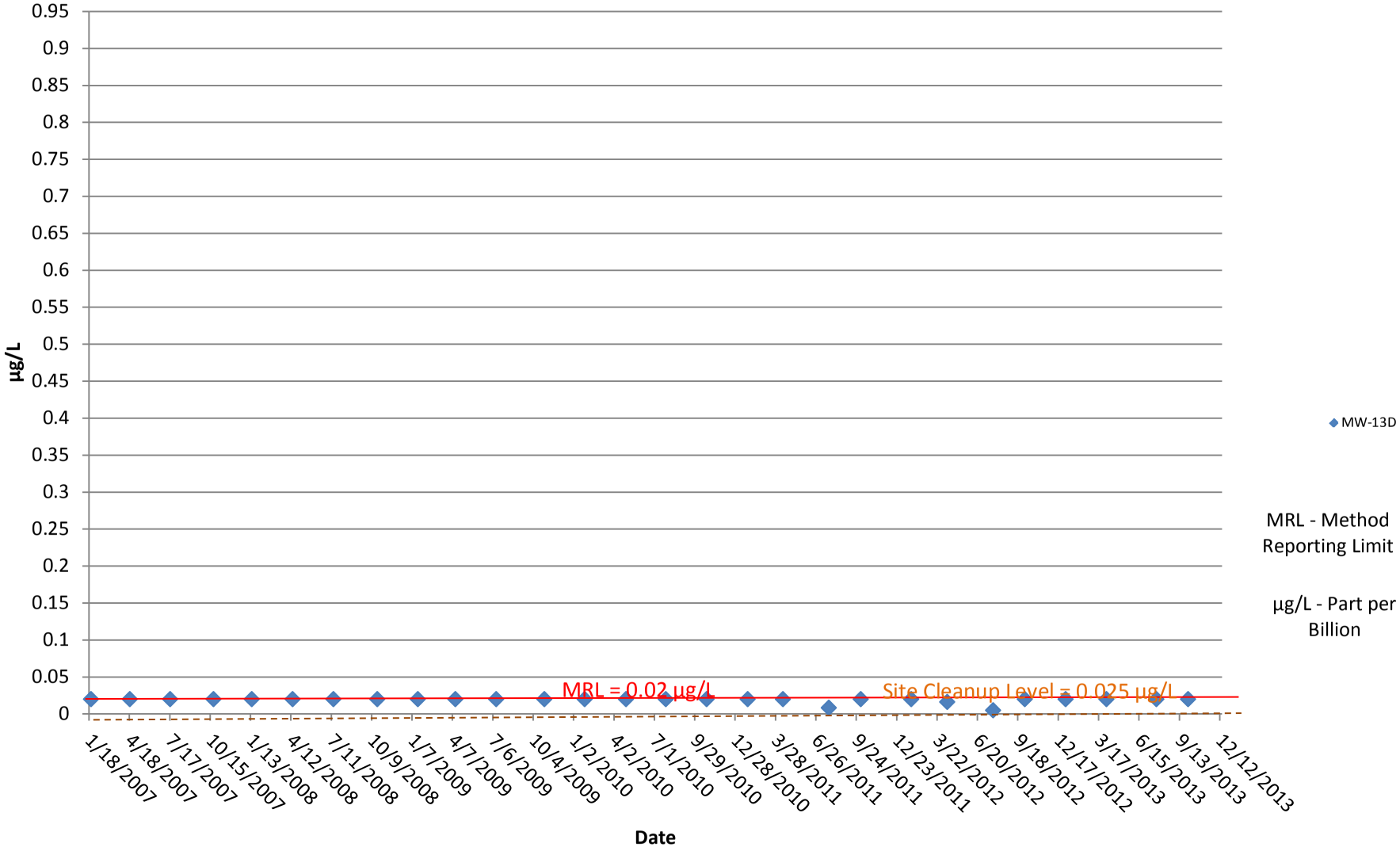
Vinyl Chloride , MW-07
Hansville Landfill



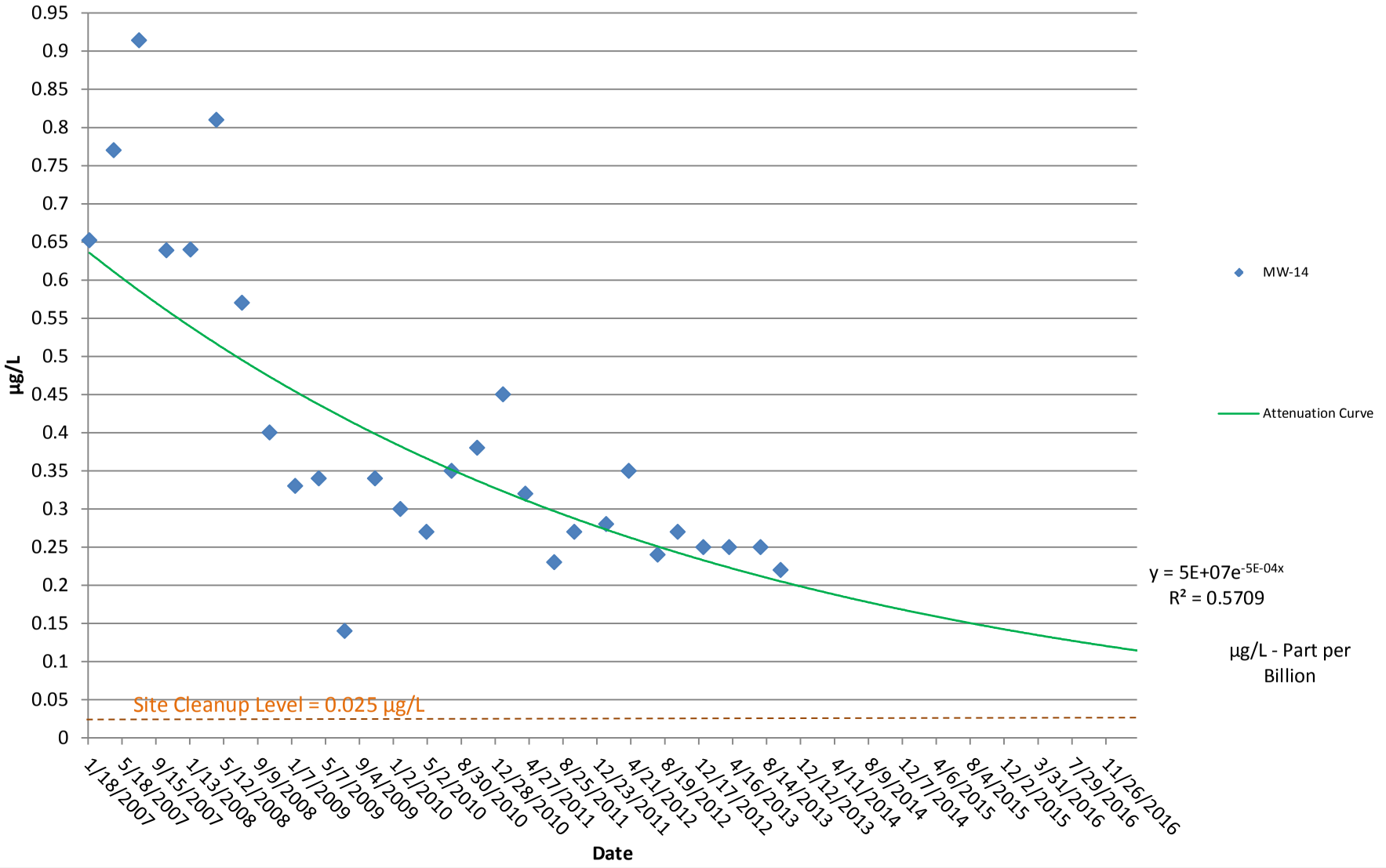
Vinyl Chloride, MW-12I
Hansville Landfill

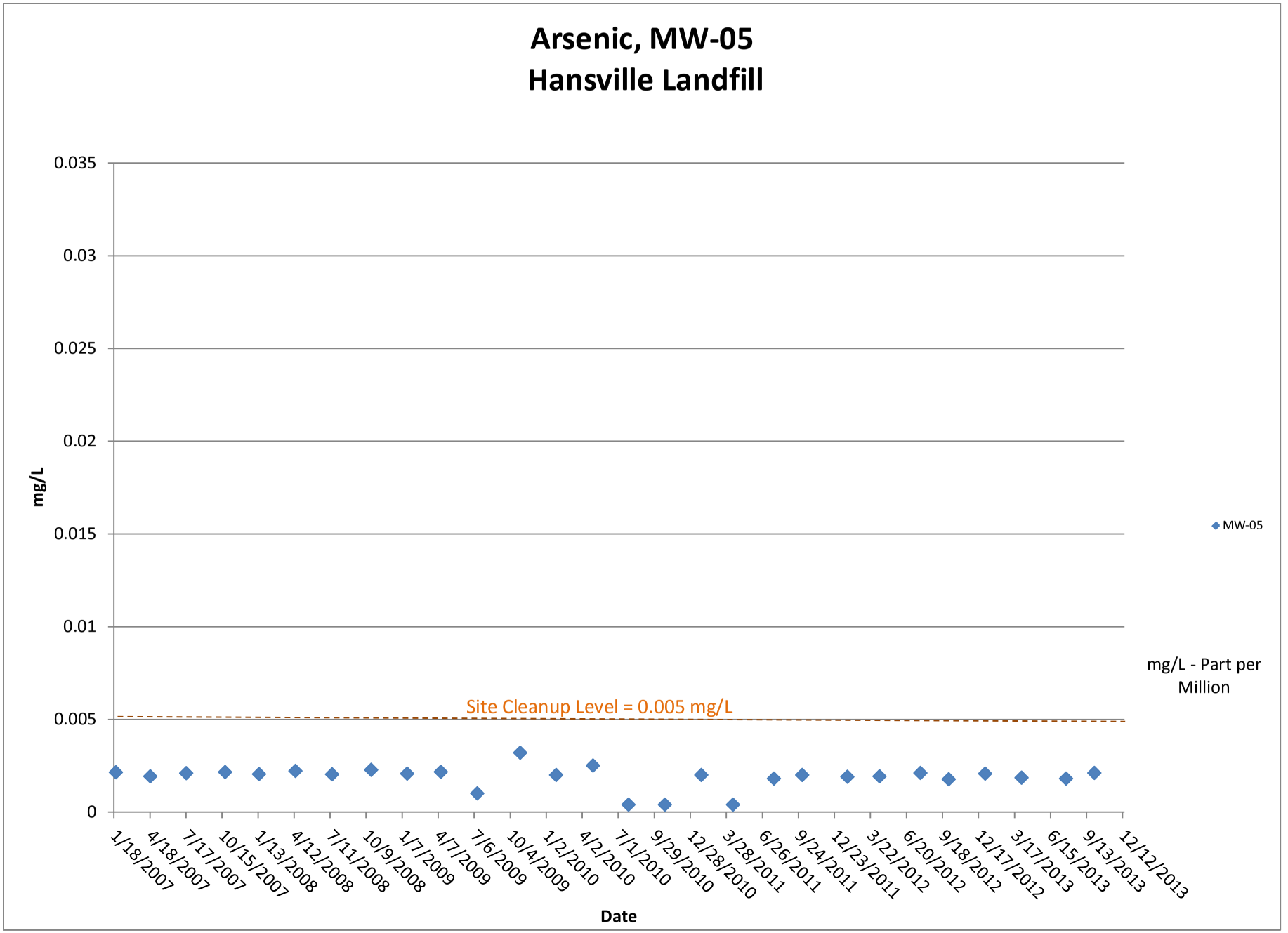


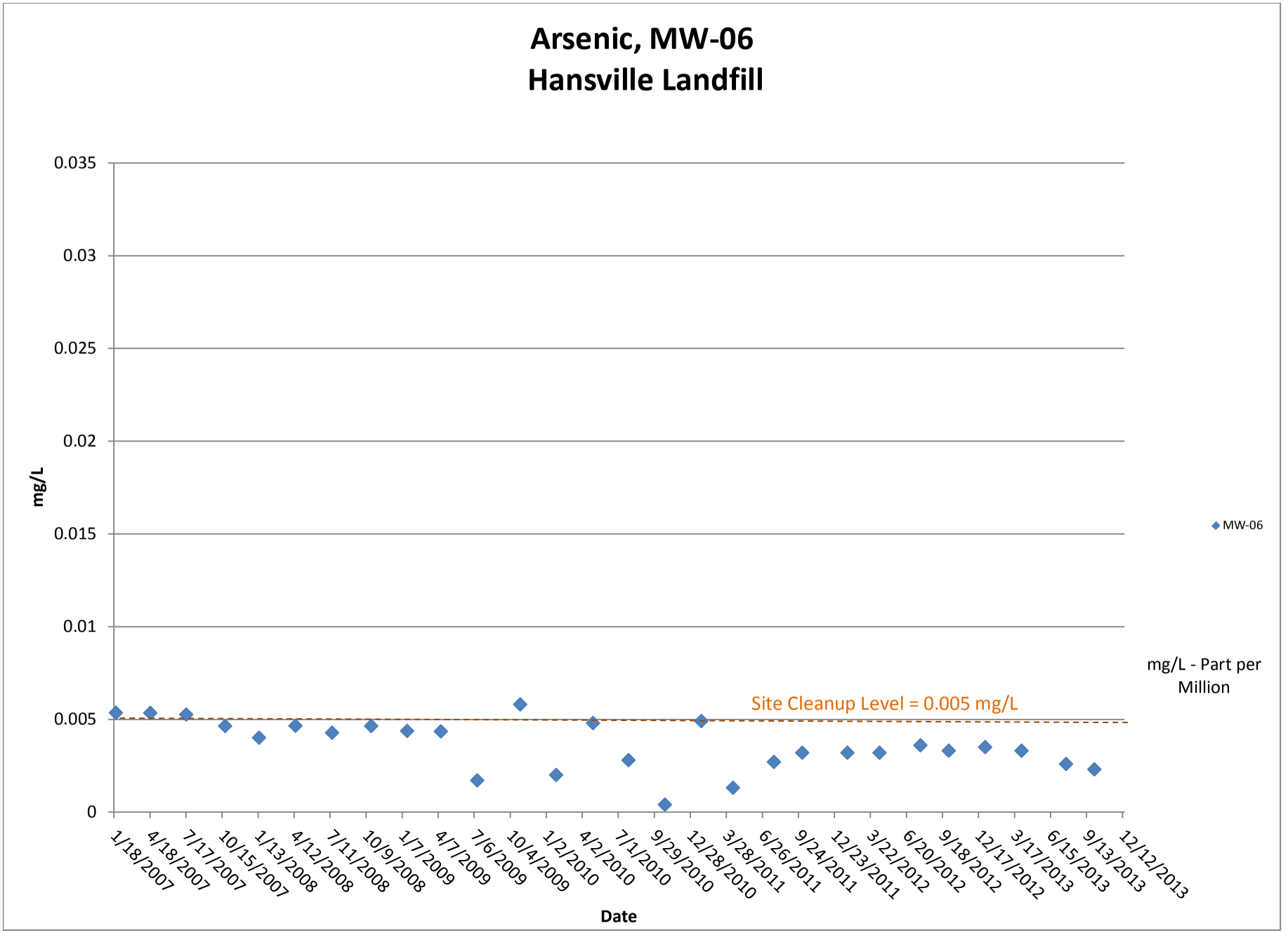
Vinyl Chloride, MW-13D
Hansville Landfill



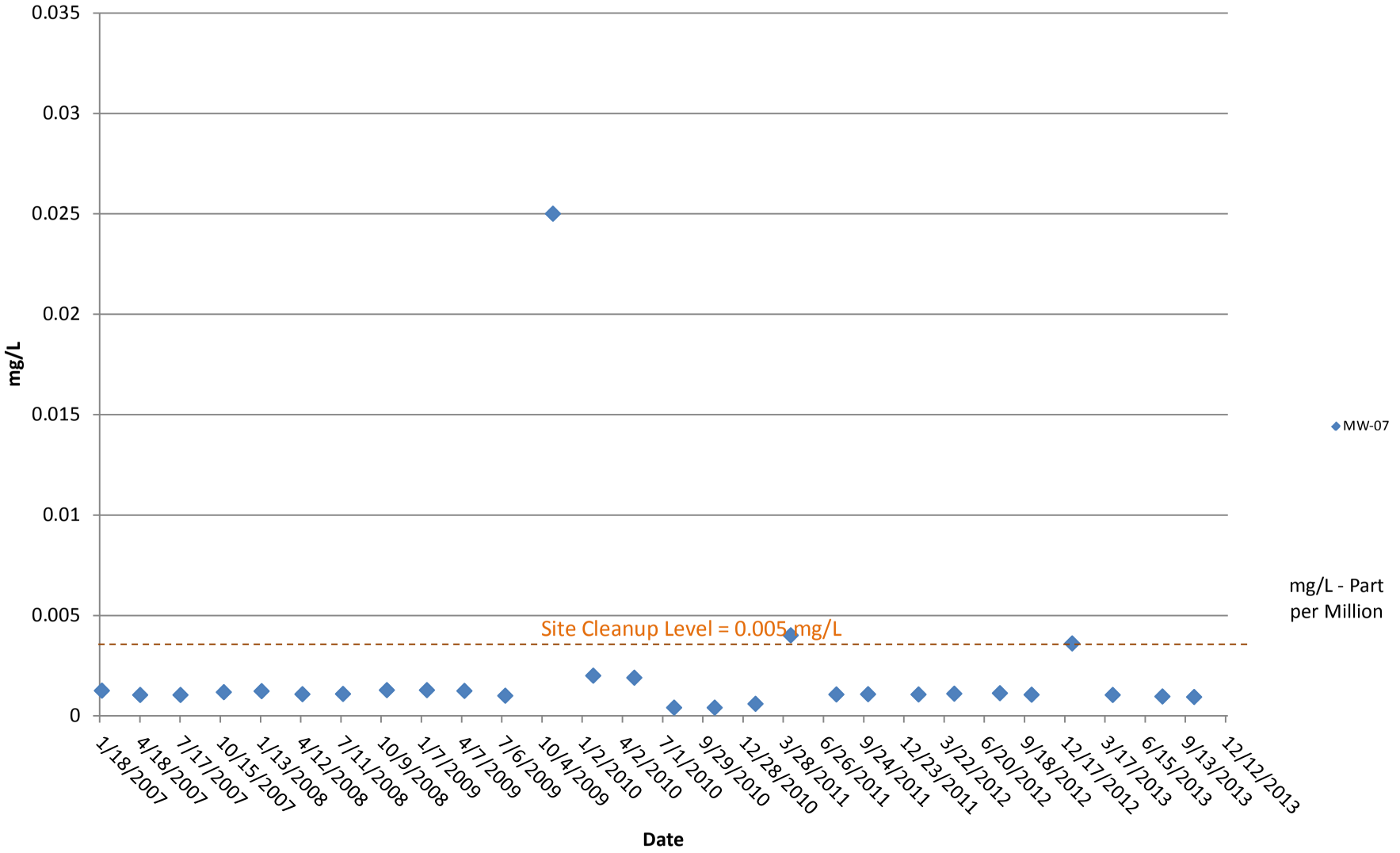
Vinyl Chloride, MW-14
Hansville Landfill



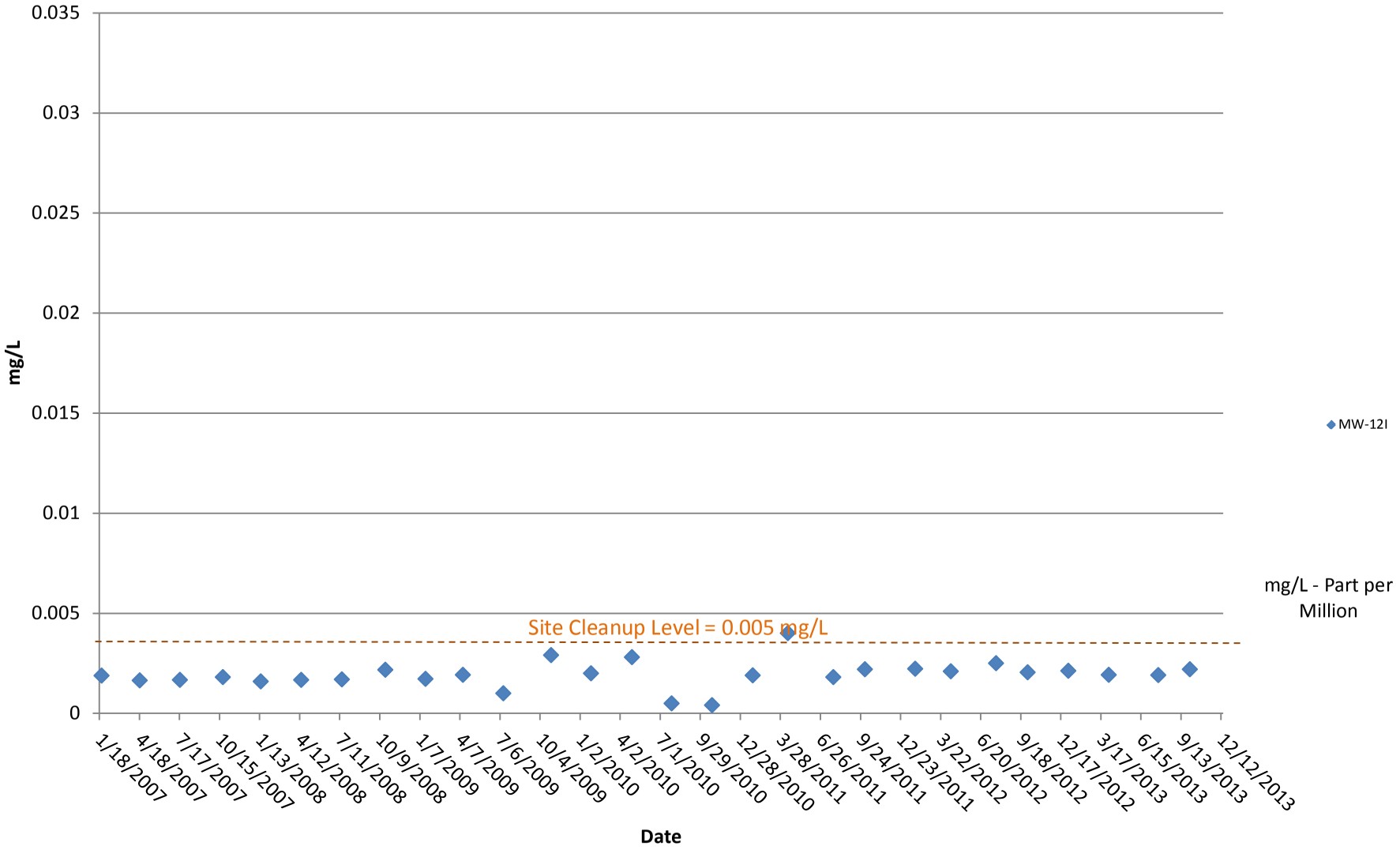

Arsenic, MW-05
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Site Cleanup Level = 0.005 mg/L
MW-05
mg/L - Part per Million
1/18/2007
4/18/2007
7/17/2007
10/15/2007
1/13/2008
4/12/2008
7/11/2008
10/9/2008
1/7/2009
4/7/2009
7/6/2009
10/4/2009
1/2/2010
4/2/2010
7/1/2010
9/29/2010
12/28/2010
3/28/2011
6/26/2011
9/24/2011
12/23/2011
3/22/2012
6/20/2012
9/18/2012
12/17/2012
3/17/2013
6/15/2013
9/13/2013
12/12/2013
Date


Arsenic, MW-06
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Site Cleanup Level = 0.005 mg/L
MW-06
mg/L - Part per Million
1/18/2007
4/18/2007
7/17/2007
10/15/2007
1/13/2008
4/12/2008
7/11/2008
10/9/2008
1/7/2009
4/7/2009
7/6/2009
10/4/2009
1/2/2010
4/2/2010
7/1/2010
9/29/2010
12/28/2010
3/28/2011
6/26/2011
9/24/2011
12/23/2011
3/22/2012
6/20/2012
9/18/2012
12/17/2012
3/17/2013
6/15/2013
9/13/2013
12/12/2013
Date

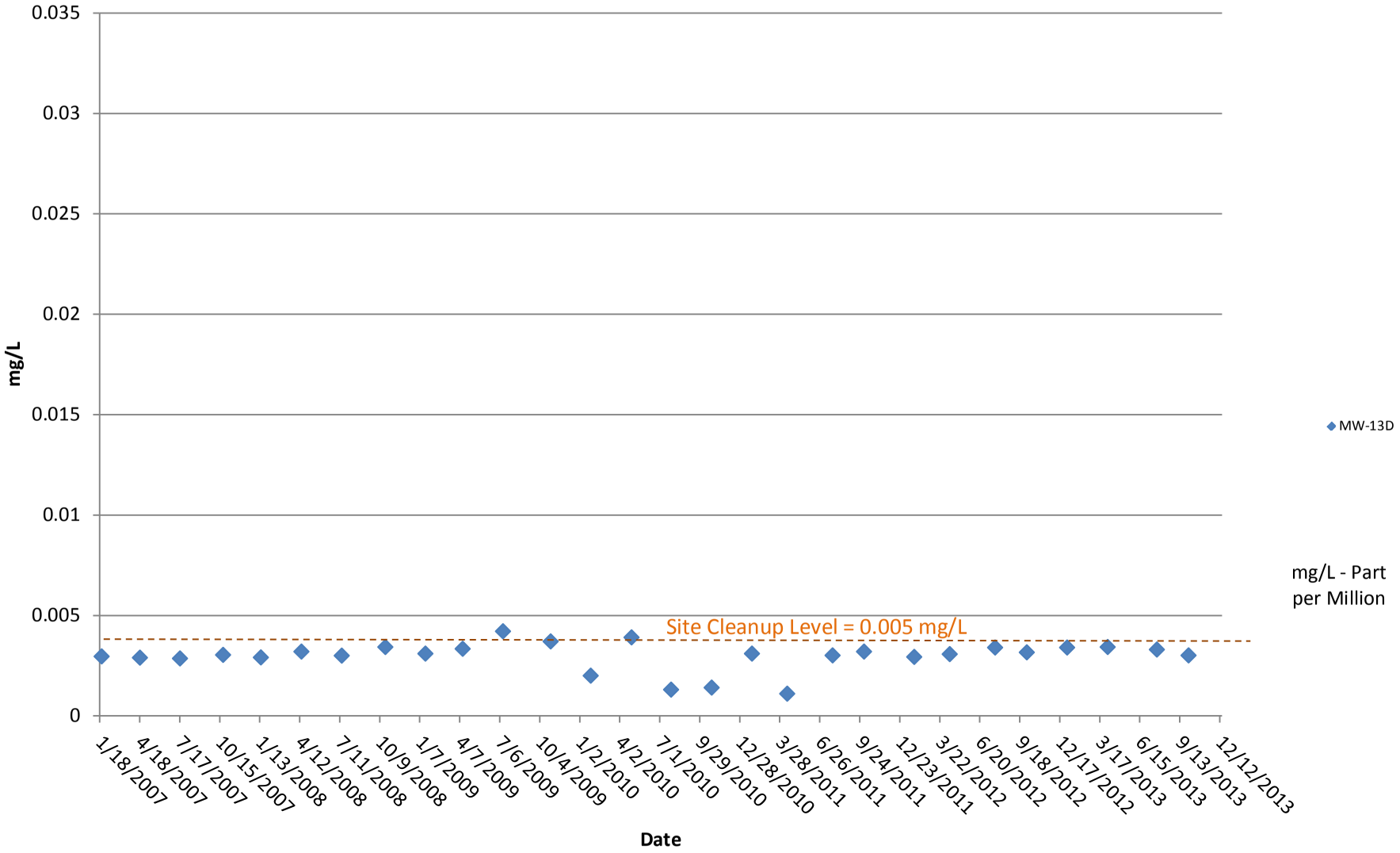
Arsenic, MW-07
Hansville Landfill



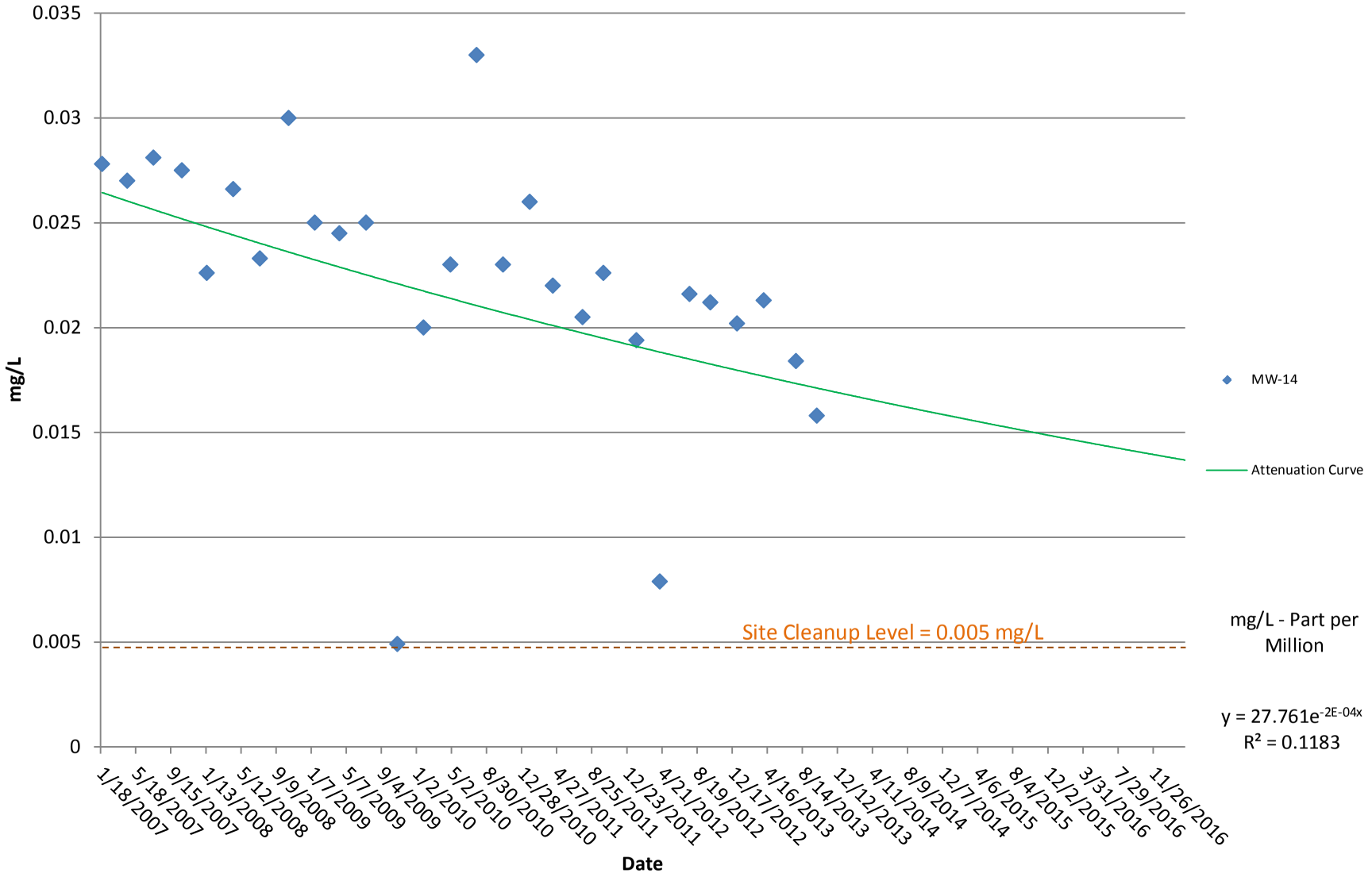
Arsenic, MW-12I
Hansville Landfill



Arsenic, MW-13D
Hansville Landfill



Arsenic, MW-14
Hansville Landfill



Appendix E

Fourth Quarter (October) 2013 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 #: _____
Site: Hansville
Well ID: MW-7
Sample ID: ~~Hansville-100313-01~~ MW-7
Date: 10/03/13
Weather: Overcast

85.88 DTW
_____ TOS
_____ Intake
_____ BOS
_____ Total Depth

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

CONTROL SETTINGS:
Refill _____
Discharge _____
Pressure _____
Flow _____

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

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

Sample Containers:

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0904	Begin	Purge						
0909	85.88	10.41	338	0.17	6.83	147.9	0.44	350
0912	85.88	10.70	333	0.17	6.84	148.6	0.25	350
0915		11.76	330	0.18	6.85	132.3		
0918		12.23	327	0.19	6.85	127.7	0.31	
0921		12.36	326	0.20	6.83	124.3		
0924		12.42	325	0.20	6.82	122.0		

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

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

SAMPLER: Andrew McDonald
Printed Name

Andrew McDonald
Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: MW-6
Sample ID: MW-6
Date: 10/3/2013
Weather: Overcast

75.35 DTW
TOS
Intake
BOS
Total Depth

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

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

Refill
Discharge
Pressure
Flow 200

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

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

Sample Containers:

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

TIME	DTW	Temp	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1014	Start Purge							
1019	75.13	13.30	320	0.21	7.56	105.6	1.15	700
1022	75.43	13.54	314	0.15	7.44	93.5	0.89	
1025		14.07	324	0.13	7.37	82.0		
1028		15.10	336	0.12	7.29	69.3	0.90	
1031		15.80	348	0.09	7.27	56.8		
1034		16.52	353	0.08	7.19	51.9	0.00	

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

Dup taken as MW-200D

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

SAMPLER: Andrew McDonald
Printed Name

Andrew McDonald
Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: MW-5
Sample ID: MW-5
Date: 10/3/2013
Weather: Partially Cloudy

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

101.50 DTW
TOS
Intake
BOS
Total Depth

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

Refill
Discharge
Pressure
Flow 400

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

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

Sample Containers:

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

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

TIME	DTW	Temp	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1204	Start Purge							
1209	101.49	10.62	131	4.87	7.92	32.8	0.77	400
1212	" "	11.58	133	5.61	7.79	30.5	0.64	
1215		11.68	132	5.10	7.76	31.2		
1218		11.74	134	4.93	7.71	31.5		
1221		11.96	132	4.87	7.68	31.6		
1224		12.58	132	4.82	7.60	31.4	0.42	

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

SAMPLER: Andrew McDonald
Printed Name

Andrew McDonald
Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: MW-14
Sample ID: MW-14
Date: 10/3/2013
Weather: Overcast

83.63 DTW
TOS
Intake
BOS
Total Depth

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

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

Refill
Discharge
Pressure
Flow 415
One Well Volume (liters)
Total Volume Bailed (liters)
Other:
Flow Setting:

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1113	Start Purge							
1118	83.80	12.01	348	0.08	7.41	34.9	1.83	4.15 "
1121	83.78	13.62	316	0.08	7.20	-27.4	1.14	
1124		14.00	307	0.08	7.09	-40.7		
1127		14.36	306	0.07	7.08	-42.6	1.37	
1130		14.16	302	0.07	7.04	-49.5	1.17	
1133		14.46	299	0.07	7.00	-53.2		

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

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

SAMPLER: Andrew McDonald
Printed Name

Andrew McDonald
Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: MW-12.1
Sample ID: MW-12.1
Date: 10/3/2013
Weather: Sunny

10.41 DTW
TOS
Intake
BOS
Total Depth

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

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

Refill
Discharge
Pressure
Flow 450

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

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

Sample Containers:

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1342	Purge Began							
1347	10.83	10.17	183	0.17	7.91	19.3	0.31	450
1350		10.36	200	0.11	7.75	23.4	0.44	
1353		10.43	201	0.09	7.70	23.4		
1356		10.51	201	0.19	7.59	23.0		
1359		10.53	199	0.10	7.54	25.0	0.59	
1402		10.57	199	0.08	7.49	26.6	0.45	

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

SAMPLER: Andrew McDonald
Printed Name

Andrew McDonald
Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: MW-13D
Sample ID: MW-13D
Date: 10/3/2013
Weather:

12.25 DTW
TOS
Intake
BOS
Total Depth

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

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

Refill /
Discharge /
Pressure
Flow 400

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

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

Sample Containers:

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1258	Begin Purge							
1303	12.52	10.48	217	0.30	8.26	36.3	2.95	400
1306	12.55	10.57	217	0.13	8.14	-27.6		
1309		10.69	218	0.10	8.09	-33.6	1.24	
1312		10.78	217	0.08	8.04	-38.6	0.58	
1315		10.82	218	0.07	8.00	-42.1		
1318		10.85	217	0.06	7.97	-44.4		

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

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

SAMPLER: Andrew McDonald
Printed Name

Andrew McDonald
Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: SW-4
Sample ID: SW-4
Date: 10/3/2013
Weather: Overcast

DTW
TOS
Intake
BOS
Total Depth

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

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

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

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

Sample Containers:

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1040	—	12.60	381	0.82	7.53	78	2.81	

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

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

SAMPLER: Matt Oliver
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: SW-6
Sample ID: SW-6
Date: 10/3/2013
Weather: Cloudy

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

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

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

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1015	~~[illegible]~~	11.84	132	0.59	6.93	56	1.87	

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

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

SAMPLER: MHA O'Hare
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: SW-7
Sample ID: SW-7
Date: 10/3/2013
Weather: Overcast

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

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

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

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

Sample Containers:

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0935	~	11.88	171	0.42	6.53	155	2.14	

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

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

SAMPLER: Matt Dyer
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.02
Site: Hansville
Well ID: SW-1
Sample ID: SW-1
Date: 10/3/2013
Weather: Partly Cloudy

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

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure
Flow

1 ft water = 0.62L
1L = 0.24 gallons

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

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

Sample Containers:

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1355	–	12.20	~~[illegible]~~ 210	1.2	7.65	56	3.61	–

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

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

SAMPLER: Matt Offtme
Printed Name

Signature

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	10/03/13					
Time	0825					
Weather (sky or precip, temp)	Overcast					
Type of Calibration	Standard	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	476	5.33	6.10	755.99 mmHg		
Post Cal Reading	445	4.01	7.00			
Descrepancy						
Calib. Successful?	Yes					
Calibration by	MO					
Instrument Type, ID	MP20 / YSI 556				MicoTPW / HACH2000	
Calibration Location	MW-7 Hansville					

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

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH4	pH 7	DO	Turbidity	Comments/Exceptions
Date	10/03/13					
Time	0825					
Weather (sky or precip, temp)	Overcast					
Type of Calibration	Standard	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	463	3.90	8.00		-1.28, 98.6	
Post Cal Reading	445	4.01	7.00			
Descrepancy						
Calib. Successful?	Yes					
Calibration by	AM					
Instrument Type / ID	Horiba U-50 MP20 / YSI 556				MicoTPW / HACH2000 LA Motte 2020	
Calibration Location	MW-7 Hansville					

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

Appendix F

Fourth Quarter (October) 2013 Laboratory Data Reports

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-47462-1

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
10/22/2013 1:59 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/22/2013

cc: Mr. Greg Helland
Mr. Charles Luckie

The Lab Certification ID# is E87667.

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

Table of Contents

CASE NARRATIVE

Client: SCS Engineers

Project: Hansville Landfill

Report Number: 280-47462-1

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 10/04/2013; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 1.1º C, 3.5º C, 4.4º C and 5.0º 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)

Samples MW-5 and SW-1 was selected to fulfill the laboratory batch quality control requirements for Method 300.0. Analysis of the laboratory generated MS for these samples 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 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 8260B 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 phone

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-47462-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-47462-1	**MW-7**					
Sulfate		4.9		1.0	mg/L	300.0
Nitrate as N		0.64		0.50	mg/L	300.0
Chloride		2.6		1.0	mg/L	9251
Total Alkalinity		180		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		180		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.7		1.0	mg/L	SM 5310B
280-47462-2	**MW-6**					
Vinyl chloride		0.34		0.020	ug/L	8260B SIM
Sulfate		21		1.0	mg/L	300.0
Nitrate as N		2.3		0.50	mg/L	300.0
Chloride		16		1.0	mg/L	9251
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
Dissolved						
Manganese		650		1.0	ug/L	6020
280-47462-3	**MW-14**					
Vinyl chloride		0.22		0.020	ug/L	8260B SIM
Sulfate		17		1.0	mg/L	300.0
Chloride		8.5		1.0	mg/L	9251
Total Alkalinity		130		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		130		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.2		1.0	mg/L	SM 5310B
Dissolved						
Manganese		2800		1.0	ug/L	6020
280-47462-4	**MW-5**					
Sulfate		7.9		1.0	mg/L	300.0
Nitrate as N		0.62		0.50	mg/L	300.0
Chloride		6.2		1.0	mg/L	9251
Total Alkalinity		58		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		58		5.0	mg/L	SM 2320B

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-47462-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-47462-5	**MW-20DD**					
Vinyl chloride		0.36		0.020	ug/L	8260B SIM
Sulfate		22		1.0	mg/L	300.0
Nitrate as N		2.5		0.50	mg/L	300.0
Chloride		20		1.0	mg/L	9251
Total Alkalinity		160		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		160		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.1		1.0	mg/L	SM 5310B
Dissolved						
Manganese		670		1.0	ug/L	6020
280-47462-6	**MW-13D**					
Sulfate		17		1.0	mg/L	300.0
Chloride		8.5		1.0	mg/L	9251
Total Alkalinity		89		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		89		5.0	mg/L	SM 2320B
Dissolved						
Manganese		35		1.0	ug/L	6020
280-47462-7	**MW-12I**					
Vinyl chloride		0.23		0.020	ug/L	8260B SIM
Sulfate		6.6		1.0	mg/L	300.0
Chloride		5.5		1.0	mg/L	9251
Total Alkalinity		97		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		97		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.5		1.0	mg/L	SM 5310B
Dissolved						
Manganese		52		1.0	ug/L	6020
280-47462-8	**SW-7**					
Sulfate		6.1		1.0	mg/L	300.0
Nitrate as N		0.87		0.50	mg/L	300.0
Chloride		5.6		1.0	mg/L	9251
Total Alkalinity		58		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		58		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		14		1.0	mg/L	SM 5310B
Dissolved						
Manganese		4.7		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers

Job Number: 280-47462-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-47462-9	**SW-6**					
Sulfate		6.9		1.0	mg/L	300.0
Ammonia as N		0.038		0.030	mg/L	350.1
Chloride		4.8		1.0	mg/L	9251
Total Alkalinity		55		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		55		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		27		1.0	mg/L	SM 5310B
Dissolved						
Manganese		84		1.0	ug/L	6020
280-47462-10	**SW-4**					
Sulfate		20		1.0	mg/L	300.0
Nitrate as N		0.93		0.50	mg/L	300.0
Chloride		16		1.0	mg/L	9251
Total Alkalinity		160		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		160		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		14		1.0	mg/L	SM 5310B
Dissolved						
Manganese		65		1.0	ug/L	6020
280-47462-11	**SW-1**					
Sulfate		11		1.0	mg/L	300.0
Nitrate as N		1.9		0.50	mg/L	300.0
Chloride		4.9		1.0	mg/L	9251
Total Alkalinity		86		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		86		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		3.6		1.0	mg/L	SM 5310B
Dissolved						
Manganese		2.7		1.0	ug/L	6020

METHOD SUMMARY

Client: SCS Engineers Job Number: 280-47462-1

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	
Chloride	TAL DEN	SW846 9251	
Alkalinity	TAL DEN	SM SM 2320B	
Organic Carbon, Total (TOC)	TAL DEN	SM SM 5310B	
Volatile Organic Compounds (GC/MS)	TAL BUF	SW846 8260B SIM	
Purge and Trap	TAL BUF		SW846 5030B
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: 280-47462-1

Method	Analyst	Analyst ID
SW846 8260B SIM	Brandt, Todd R	TRB
SW846 6020	Lill, Thomas E	TEL
MCAWW 300.0	Phan, Thu L	TLP
MCAWW 350.1	Allen, Andrew J	AJA
SW846 9251	Allen, Andrew J	AJA
SM SM 2320B	Hoefler, Alexandra F	AFH
SM SM 5310B	Bandy, Darlene F	DFB

SAMPLE SUMMARY

Client: SCS Engineers

Job Number: 280-47462-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-47462-1	MW-7	Water	10/03/2013 0924	10/04/2013 0900
280-47462-2	MW-6	Water	10/03/2013 1034	10/04/2013 0900
280-47462-3	MW-14	Water	10/03/2013 1133	10/04/2013 0900
280-47462-4	MW-5	Water	10/03/2013 1224	10/04/2013 0900
280-47462-5	MW-20DD	Water	10/03/2013 1034	10/04/2013 0900
280-47462-6	MW-13D	Water	10/03/2013 1318	10/04/2013 0900
280-47462-7	MW-12I	Water	10/03/2013 1402	10/04/2013 0900
280-47462-8	SW-7	Water	10/03/2013 0935	10/04/2013 0900
280-47462-9	SW-6	Water	10/03/2013 1015	10/04/2013 0900
280-47462-10	SW-4	Water	10/03/2013 1040	10/04/2013 0900
280-47462-11	SW-1	Water	10/03/2013 1355	10/04/2013 0900
280-47462-12TB	TRIP BLANK	Water	10/03/2013 0000	10/04/2013 0900

SAMPLE RESULTS

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-7**

Lab Sample ID: 280-47462-1 Date Sampled: 10/03/2013 0924
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5285.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1404			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1404				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	107		50 - 150
Dibromofluoromethane (Surr)	101		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-6**

Lab Sample ID: 280-47462-2 Date Sampled: 10/03/2013 1034
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5286.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1428			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1428				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.34		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	105		50 - 150
Dibromofluoromethane (Surr)	101		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-14**

Lab Sample ID: 280-47462-3 Date Sampled: 10/03/2013 1133
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5287.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1452			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1452				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.22		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	104		50 - 150
Dibromofluoromethane (Surr)	99		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-5**

Lab Sample ID: 280-47462-4 Date Sampled: 10/03/2013 1224
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5288.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1516			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1516				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	102		50 - 150
Dibromofluoromethane (Surr)	99		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

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

Lab Sample ID: 280-47462-5 Date Sampled: 10/03/2013 1034
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5289.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1541			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1541				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.36		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	108		50 - 150
Dibromofluoromethane (Surr)	100		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

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

Lab Sample ID: 280-47462-6 Date Sampled: 10/03/2013 1318
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5290.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1605			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1605				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	105		50 - 150
Dibromofluoromethane (Surr)	98		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-12I**

Lab Sample ID: 280-47462-7 Date Sampled: 10/03/2013 1402
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5291.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1629			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1629				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	105		50 - 150
Dibromofluoromethane (Surr)	100		50 - 150

Client: SCS Engineers | Job Number: 280-47462-1

Client Sample ID: **SW-7**

Lab Sample ID: 280-47462-8 | Date Sampled: 10/03/2013 0935
Client Matrix: Water | Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5292.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1653			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1653				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	107		50 - 150
Dibromofluoromethane (Surr)	99		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **SW-6**

Lab Sample ID: 280-47462-9 Date Sampled: 10/03/2013 1015
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5293.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1717			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1717				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	102		50 - 150
Dibromofluoromethane (Surr)	99		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **SW-4**

Lab Sample ID: 280-47462-10 Date Sampled: 10/03/2013 1040
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5294.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1741			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1741				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	101		50 - 150
Dibromofluoromethane (Surr)	99		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **SW-1**

Lab Sample ID: 280-47462-11 Date Sampled: 10/03/2013 1355
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5295.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1805			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1805				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
TBA-d9 (Surr)	105		50 - 150
Dibromofluoromethane (Surr)	97		50 - 150

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 280-47462-12TB Date Sampled: 10/03/2013 0000
Client Matrix: Water Date Received: 10/04/2013 0900

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J5296.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1829			Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1829				

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

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

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-7**

Lab Sample ID: 280-47462-1 Date Sampled: 10/03/2013 0924
Client Matrix: Water Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	190AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0610			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

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

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **MW-6**

Lab Sample ID: 280-47462-2 Date Sampled: 10/03/2013 1034
Client Matrix: Water Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	195SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0626			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	650		1.0

Client: SCS Engineers

Job Number: 280-47462-1

Client Sample ID: **MW-14**

Lab Sample ID: 280-47462-3
Client Matrix: Water

Date Sampled: 10/03/2013 1133
Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	196SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0629			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

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

Client: SCS Engineers

Job Number: 280-47462-1

Client Sample ID: **MW-5**

Lab Sample ID: 280-47462-4
Client Matrix: Water

Date Sampled: 10/03/2013 1224
Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	197SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0632			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

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

Client: SCS Engineers Job Number: 280-47462-1

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

Lab Sample ID: 280-47462-5 Date Sampled: 10/03/2013 1034
Client Matrix: Water Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	200SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0641			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	670		1.0

Client: SCS Engineers

Job Number: 280-47462-1

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

Lab Sample ID: 280-47462-6
Client Matrix: Water

Date Sampled: 10/03/2013 1318
Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	201SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0644			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	35		1.0

Client: SCS Engineers

Job Number: 280-47462-1

Client Sample ID: **MW-12I**

Lab Sample ID: 280-47462-7
Client Matrix: Water

Date Sampled: 10/03/2013 1402
Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	202SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0647			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	52		1.0

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **SW-7**

Lab Sample ID: 280-47462-8 Date Sampled: 10/03/2013 0935
Client Matrix: Water Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	203SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0650			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	4.7		1.0

Client: SCS Engineers

Job Number: 280-47462-1

Client Sample ID: **SW-6**

Lab Sample ID: 280-47462-9
Client Matrix: Water

Date Sampled: 10/03/2013 1015
Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	204SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0653			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	84		1.0

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **SW-4**

Lab Sample ID: 280-47462-10 Date Sampled: 10/03/2013 1040
Client Matrix: Water Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	205SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0656			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	65		1.0

Client: SCS Engineers Job Number: 280-47462-1

Client Sample ID: **SW-1**

Lab Sample ID: 280-47462-11 Date Sampled: 10/03/2013 1355
Client Matrix: Water Date Received: 10/04/2013 0900

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-195115	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-194806	Lab File ID:	206SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0700			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	2.7		1.0

General Chemistry

Client Sample ID: **MW-7**

Lab Sample ID: 280-47462-1 Date Sampled: 10/03/2013 0924
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	0.64		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2139					
Sulfate	4.9		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/04/2013 2139					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2139					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2139					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1354					
Chloride	2.6		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1111					
Total Alkalinity	180		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1832					
Bicarbonate Alkalinity	180		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1832					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1832					
Total Organic Carbon - Average	1.7		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/07/2013 1015					

General Chemistry

Client Sample ID: **MW-6**

Lab Sample ID: 280-47462-2 Date Sampled: 10/03/2013 1034
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	2.3		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2156					
Sulfate	21		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/04/2013 2156					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2156					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2156					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1403					
Chloride	16		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1113					
Total Alkalinity	140		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1836					
Bicarbonate Alkalinity	140		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1836					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1836					
Total Organic Carbon - Average	1.1		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/07/2013 1031					

General Chemistry

Client Sample ID: **MW-14**

Lab Sample ID: 280-47462-3 Date Sampled: 10/03/2013 1133
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2213					
Sulfate	17		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/04/2013 2213					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2213					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2213					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1410					
Chloride	8.5		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1114					
Total Alkalinity	130		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1846					
Bicarbonate Alkalinity	130		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1846					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1846					
Total Organic Carbon - Average	1.2		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/07/2013 1051					

General Chemistry

Client Sample ID: **MW-5**

Lab Sample ID: 280-47462-4 Date Sampled: 10/03/2013 1224
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	0.62		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2229					
Sulfate	7.9		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/04/2013 2229					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2229					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2229					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1424					
Chloride	6.2		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1118					
Total Alkalinity	58		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1850					
Bicarbonate Alkalinity	58		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1850					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1850					
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/07/2013 1106					

General Chemistry

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

Lab Sample ID: 280-47462-5 Date Sampled: 10/03/2013 1034
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	2.5		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2336					
Sulfate	22		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/04/2013 2336					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2336					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2336					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1426					
Chloride	20		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1119					
Total Alkalinity	160		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1855					
Bicarbonate Alkalinity	160		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1855					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1855					
Total Organic Carbon - Average	1.1		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/07/2013 1122					

General Chemistry

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

Lab Sample ID: 280-47462-6 Date Sampled: 10/03/2013 1318
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2353					
Sulfate	17		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/04/2013 2353					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2353					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/04/2013 2353					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1429					
Chloride	8.5		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1120					
Total Alkalinity	89		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1900					
Bicarbonate Alkalinity	89		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1900					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1900					
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/07/2013 1139					

General Chemistry

Client Sample ID: **MW-12I**

Lab Sample ID: 280-47462-7 Date Sampled: 10/03/2013 1402
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0010					
Sulfate	6.6		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/05/2013 0010					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0010					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0010					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1431					
Chloride	5.5		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1121					
Total Alkalinity	97		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1905					
Bicarbonate Alkalinity	97		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1905					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195456	Analysis Date: 10/10/2013 1905					
Total Organic Carbon - Average	2.5		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/06/2013 1941					

General Chemistry

Client Sample ID: **SW-7**

Lab Sample ID: 280-47462-8 Date Sampled: 10/03/2013 0935
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	0.87		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0100					
Sulfate	6.1		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/05/2013 0100					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0100					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0100					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1433					
Chloride	5.6		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1123					
Total Alkalinity	58		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1347					
Bicarbonate Alkalinity	58		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1347					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1347					
Total Organic Carbon - Average	14		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/06/2013 1958					

General Chemistry

Client Sample ID: **SW-6**

Lab Sample ID: 280-47462-9 Date Sampled: 10/03/2013 1015
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0116					
Sulfate	6.9		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/05/2013 0116					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0116					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0116					
Ammonia as N	0.038		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1436					
Chloride	4.8		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1135					
Total Alkalinity	55		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1352					
Bicarbonate Alkalinity	55		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1352					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1352					
Total Organic Carbon - Average	27		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/06/2013 2016					

General Chemistry

Client Sample ID: **SW-4**

Lab Sample ID: 280-47462-10 Date Sampled: 10/03/2013 1040
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	0.93		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0133					
Sulfate	20		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/05/2013 0133					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0133					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0133					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1438					
Chloride	16		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1137					
Total Alkalinity	160		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1357					
Bicarbonate Alkalinity	160		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1357					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1357					
Total Organic Carbon - Average	14		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/06/2013 2036					

General Chemistry

Client Sample ID: **SW-1**

Lab Sample ID: 280-47462-11 Date Sampled: 10/03/2013 1355
Client Matrix: Water Date Received: 10/04/2013 0900

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	1.9		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0150					
Sulfate	11		mg/L	1.0	1.0	300.0
Analysis Batch: 280-194793	Analysis Date: 10/05/2013 0150					
Nitrite as N	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0150					
Orthophosphate as P	ND		mg/L	0.50	1.0	300.0
Analysis Batch: 280-194792	Analysis Date: 10/05/2013 0150					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-196103	Analysis Date: 10/15/2013 1440					
Chloride	4.9		mg/L	1.0	1.0	9251
Analysis Batch: 280-195167	Analysis Date: 10/09/2013 1138					
Total Alkalinity	86		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1402					
Bicarbonate Alkalinity	86		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1402					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-195669	Analysis Date: 10/11/2013 1402					
Total Organic Carbon - Average	3.6		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-194794	Analysis Date: 10/06/2013 2053					

DATA REPORTING QUALIFIERS

Client: SCS Engineers Job Number: 280-47462-1

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

QUALITY CONTROL RESULTS

Client: SCS Engineers Job Number: 280-47462-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:480-144252					
LCS 480-144252/10	Lab Control Sample	T	Water	8260B SIM	
LCSD 480-144252/11	Lab Control Sample Duplicate	T	Water	8260B SIM	
MB 480-144252/12	Method Blank	T	Water	8260B SIM	
280-47462-1	MW-7	T	Water	8260B SIM	
280-47462-2	MW-6	T	Water	8260B SIM	
280-47462-3	MW-14	T	Water	8260B SIM	
280-47462-4	MW-5	T	Water	8260B SIM	
280-47462-5	MW-20DD	T	Water	8260B SIM	
280-47462-6	MW-13D	T	Water	8260B SIM	
280-47462-7	MW-12I	T	Water	8260B SIM	
280-47462-8	SW-7	T	Water	8260B SIM	
280-47462-9	SW-6	T	Water	8260B SIM	
280-47462-10	SW-4	T	Water	8260B SIM	
280-47462-11	SW-1	T	Water	8260B SIM	
280-47462-12TB	TRIP BLANK	T	Water	8260B SIM	

Report Basis
T = Total

Client: SCS Engineers Job Number: 280-47462-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-194806					
LCS 280-194806/2-A	Lab Control Sample	R	Water	3005A	
MB 280-194806/1-A	Method Blank	R	Water	3005A	
280-47462-1	MW-7	D	Water	3005A	
280-47462-1MS	Matrix Spike	D	Water	3005A	
280-47462-1MSD	Matrix Spike Duplicate	D	Water	3005A	
280-47462-2	MW-6	D	Water	3005A	
280-47462-3	MW-14	D	Water	3005A	
280-47462-4	MW-5	D	Water	3005A	
280-47462-5	MW-20DD	D	Water	3005A	
280-47462-6	MW-13D	D	Water	3005A	
280-47462-7	MW-12I	D	Water	3005A	
280-47462-8	SW-7	D	Water	3005A	
280-47462-9	SW-6	D	Water	3005A	
280-47462-10	SW-4	D	Water	3005A	
280-47462-11	SW-1	D	Water	3005A	
Analysis Batch:280-195115					
LCS 280-194806/2-A	Lab Control Sample	R	Water	6020	280-194806
MB 280-194806/1-A	Method Blank	R	Water	6020	280-194806
280-47462-1	MW-7	D	Water	6020	280-194806
280-47462-1MS	Matrix Spike	D	Water	6020	280-194806
280-47462-1MSD	Matrix Spike Duplicate	D	Water	6020	280-194806
280-47462-2	MW-6	D	Water	6020	280-194806
280-47462-3	MW-14	D	Water	6020	280-194806
280-47462-4	MW-5	D	Water	6020	280-194806
280-47462-5	MW-20DD	D	Water	6020	280-194806
280-47462-6	MW-13D	D	Water	6020	280-194806
280-47462-7	MW-12I	D	Water	6020	280-194806
280-47462-8	SW-7	D	Water	6020	280-194806
280-47462-9	SW-6	D	Water	6020	280-194806
280-47462-10	SW-4	D	Water	6020	280-194806
280-47462-11	SW-1	D	Water	6020	280-194806

Report Basis
D = Dissolved
R = Total Recoverable

Client: SCS Engineers Job Number: 280-47462-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-194792					
LCS 280-194792/4	Lab Control Sample	T	Water	300.0	
LCSD 280-194792/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-194792/6	Method Blank	T	Water	300.0	
280-47462-1	MW-7	T	Water	300.0	
280-47462-2	MW-6	T	Water	300.0	
280-47462-3	MW-14	T	Water	300.0	
280-47462-4	MW-5	T	Water	300.0	
280-47462-4DU	Duplicate	T	Water	300.0	
280-47462-4MS	Matrix Spike	T	Water	300.0	
280-47462-4MSD	Matrix Spike Duplicate	T	Water	300.0	
280-47462-5	MW-20DD	T	Water	300.0	
280-47462-6	MW-13D	T	Water	300.0	
280-47462-7	MW-12I	T	Water	300.0	
280-47462-8	SW-7	T	Water	300.0	
280-47462-9	SW-6	T	Water	300.0	
280-47462-10	SW-4	T	Water	300.0	
280-47462-11	SW-1	T	Water	300.0	
280-47462-11DU	Duplicate	T	Water	300.0	
280-47462-11MS	Matrix Spike	T	Water	300.0	
280-47462-11MSD	Matrix Spike Duplicate	T	Water	300.0	
Analysis Batch:280-194793					
LCS 280-194793/4	Lab Control Sample	T	Water	300.0	
LCSD 280-194793/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-194793/6	Method Blank	T	Water	300.0	
280-47462-1	MW-7	T	Water	300.0	
280-47462-2	MW-6	T	Water	300.0	
280-47462-3	MW-14	T	Water	300.0	
280-47462-4	MW-5	T	Water	300.0	
280-47462-4DU	Duplicate	T	Water	300.0	
280-47462-4MS	Matrix Spike	T	Water	300.0	
280-47462-4MSD	Matrix Spike Duplicate	T	Water	300.0	
280-47462-5	MW-20DD	T	Water	300.0	
280-47462-6	MW-13D	T	Water	300.0	
280-47462-7	MW-12I	T	Water	300.0	
280-47462-8	SW-7	T	Water	300.0	
280-47462-9	SW-6	T	Water	300.0	
280-47462-10	SW-4	T	Water	300.0	
280-47462-11	SW-1	T	Water	300.0	
280-47462-11DU	Duplicate	T	Water	300.0	
280-47462-11MS	Matrix Spike	T	Water	300.0	
280-47462-11MSD	Matrix Spike Duplicate	T	Water	300.0	

Client: SCS Engineers Job Number: 280-47462-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-194794					
LCS 280-194794/3	Lab Control Sample	T	Water	SM 5310B	
LCS 280-194794/35	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-194794/36	Lab Control Sample Duplicate	T	Water	SM 5310B	
LCSD 280-194794/4	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-194794/37	Method Blank	T	Water	SM 5310B	
MB 280-194794/5	Method Blank	T	Water	SM 5310B	
280-47379-C-1 MS	Matrix Spike	T	Water	SM 5310B	
280-47379-C-1 MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-47382-C-1 MS	Matrix Spike	T	Water	SM 5310B	
280-47382-C-1 MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-47462-1	MW-7	T	Water	SM 5310B	
280-47462-2	MW-6	T	Water	SM 5310B	
280-47462-3	MW-14	T	Water	SM 5310B	
280-47462-4	MW-5	T	Water	SM 5310B	
280-47462-5	MW-20DD	T	Water	SM 5310B	
280-47462-6	MW-13D	T	Water	SM 5310B	
280-47462-7	MW-12I	T	Water	SM 5310B	
280-47462-8	SW-7	T	Water	SM 5310B	
280-47462-9	SW-6	T	Water	SM 5310B	
280-47462-10	SW-4	T	Water	SM 5310B	
280-47462-11	SW-1	T	Water	SM 5310B	
Analysis Batch:280-195167					
LCS 280-195167/58	Lab Control Sample	T	Water	9251	
LCS 280-195167/99	Lab Control Sample	T	Water	9251	
LCSD 280-195167/100	Lab Control Sample Duplicate	T	Water	9251	
LCSD 280-195167/59	Lab Control Sample Duplicate	T	Water	9251	
MB 280-195167/101	Method Blank	T	Water	9251	
MB 280-195167/60	Method Blank	T	Water	9251	
280-47462-1	MW-7	T	Water	9251	
280-47462-2	MW-6	T	Water	9251	
280-47462-3	MW-14	T	Water	9251	
280-47462-3MS	Matrix Spike	T	Water	9251	
280-47462-3MSD	Matrix Spike Duplicate	T	Water	9251	
280-47462-4	MW-5	T	Water	9251	
280-47462-5	MW-20DD	T	Water	9251	
280-47462-6	MW-13D	T	Water	9251	
280-47462-7	MW-12I	T	Water	9251	
280-47462-8	SW-7	T	Water	9251	
280-47462-9	SW-6	T	Water	9251	
280-47462-10	SW-4	T	Water	9251	
280-47462-11	SW-1	T	Water	9251	
280-47462-11MS	Matrix Spike	T	Water	9251	
280-47462-11MSD	Matrix Spike Duplicate	T	Water	9251	

Client: SCS Engineers Job Number: 280-47462-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-195456					
LCS 280-195456/58	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-195456/59	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-195456/60	Method Blank	T	Water	SM 2320B	
280-47462-1	MW-7	T	Water	SM 2320B	
280-47462-2	MW-6	T	Water	SM 2320B	
280-47462-2DU	Duplicate	T	Water	SM 2320B	
280-47462-3	MW-14	T	Water	SM 2320B	
280-47462-4	MW-5	T	Water	SM 2320B	
280-47462-5	MW-20DD	T	Water	SM 2320B	
280-47462-6	MW-13D	T	Water	SM 2320B	
280-47462-7	MW-12I	T	Water	SM 2320B	
Analysis Batch:280-195669					
LCS 280-195669/4	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-195669/5	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-195669/6	Method Blank	T	Water	SM 2320B	
280-47462-8	SW-7	T	Water	SM 2320B	
280-47462-9	SW-6	T	Water	SM 2320B	
280-47462-10	SW-4	T	Water	SM 2320B	
280-47462-11	SW-1	T	Water	SM 2320B	
280-47462-11DU	Duplicate	T	Water	SM 2320B	
Analysis Batch:280-196103					
LCS 280-196103/19	Lab Control Sample	T	Water	350.1	
LCS 280-196103/58	Lab Control Sample	T	Water	350.1	
LCSD 280-196103/20	Lab Control Sample Duplicate	T	Water	350.1	
LCSD 280-196103/59	Lab Control Sample Duplicate	T	Water	350.1	
MB 280-196103/21	Method Blank	T	Water	350.1	
MB 280-196103/60	Method Blank	T	Water	350.1	
280-47462-1	MW-7	T	Water	350.1	
280-47462-2	MW-6	T	Water	350.1	
280-47462-2MS	Matrix Spike	T	Water	350.1	
280-47462-2MSD	Matrix Spike Duplicate	T	Water	350.1	
280-47462-3	MW-14	T	Water	350.1	
280-47462-4	MW-5	T	Water	350.1	
280-47462-5	MW-20DD	T	Water	350.1	
280-47462-6	MW-13D	T	Water	350.1	
280-47462-7	MW-12I	T	Water	350.1	
280-47462-8	SW-7	T	Water	350.1	
280-47462-9	SW-6	T	Water	350.1	
280-47462-10	SW-4	T	Water	350.1	
280-47462-11	SW-1	T	Water	350.1	

Client: SCS Engineers

Job Number: 280-47462-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch

Report Basis
T = Total

Client: SCS Engineers

Job Number: 280-47462-1

Surrogate Recovery Report

8260B SIM Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	TBA %Rec	DBFM %Rec
280-47462-1	MW-7	107	101
280-47462-2	MW-6	105	101
280-47462-3	MW-14	104	99
280-47462-4	MW-5	102	99
280-47462-5	MW-20DD	108	100
280-47462-6	MW-13D	105	98
280-47462-7	MW-12I	105	100
280-47462-8	SW-7	107	99
280-47462-9	SW-6	102	99
280-47462-10	SW-4	101	99
280-47462-11	SW-1	105	97
280-47462-12	TRIP BLANK	103	99
MB 480-144252/12		104	97
LCS 480-144252/10		106	103
LCSD 480-144252/11		102	98

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

Client: SCS Engineers Job Number: 280-47462-1

Method Blank - Batch: 480-144252

Method: 8260B SIM
Preparation: 5030B

Lab Sample ID:	MB 480-144252/12	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J5284.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1335	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1335				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020

Surrogate	% Rec	Acceptance Limits
TBA-d9 (Surr)	104	50 - 150
Dibromofluoromethane (Surr)	97	50 - 150

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 480-144252

Method: 8260B SIM
Preparation: 5030B

LCS Lab Sample ID:	LCS 480-144252/10	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J5282.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1246	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1246				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-144252/11	Analysis Batch:	480-144252	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J5283.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/11/2013 1311	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/11/2013 1311				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Vinyl chloride	62	54	50 - 150	14	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
TBA-d9 (Surr)	106	102	50 - 150
Dibromofluoromethane (Surr)	103	98	50 - 150

Client: SCS Engineers

Job Number: 280-47462-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 480-144252

Method: 8260B SIM
Preparation: 5030B

LCS Lab Sample ID:	LCS 480-144252/10	Units:	ug/L	LCSD Lab Sample ID:	LCSD 480-144252/11
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/11/2013 1246			Analysis Date:	10/11/2013 1311
Prep Date:	10/11/2013 1246			Prep Date:	10/11/2013 1311
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.400	0.400	0.247	0.214

Method Blank - Batch: 280-194806

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-194806/1-A	Analysis Batch:	280-195115	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-194806	Lab File ID:	188_BLK.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0604	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Manganese	ND		1.0

Lab Control Sample - Batch: 280-194806

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-194806/2-A	Analysis Batch:	280-195115	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-194806	Lab File ID:	189_LCS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0607	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Manganese	40.0	40.2	101	85 - 117	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194806

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-47462-1	Analysis Batch:	280-195115	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-194806	Lab File ID:	193_MS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0619			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-1	Analysis Batch:	280-195115	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-194806	Lab File ID:	194_MSD.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/09/2013 0622			Final Weight/Volume:	50 mL
Prep Date:	10/08/2013 1200				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Manganese	101	102	85 - 117	0	20		

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194806

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-47462-1	Units: ug/L	MSD Lab Sample ID:	280-47462-1	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/09/2013 0619		Analysis Date:	10/09/2013 0622	
Prep Date:	10/08/2013 1200		Prep Date:	10/08/2013 1200	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Manganese	ND	40.0	40.0	40.6	40.6

Client: SCS Engineers

Job Number: 280-47462-1

Method Blank - Batch: 280-194792

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-194792/6	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2123	Units:	mg/L	Final Weight/Volume:	
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: 280-194792

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-194792/3	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2033	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	93	50 - 150	
Nitrite as N	0.200	ND	86	50 - 150	
Orthophosphate as P	0.200	ND	99	50 - 150	

Client: SCS Engineers Job Number: 280-47462-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-194792

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194792/4	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2049	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-194792/5	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2106	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Nitrate as N	98	98	90 - 110	0	10		
Nitrite as N	95	95	90 - 110	0	10		
Orthophosphate as P	98	99	90 - 110	1	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-194792

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194792/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-194792/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/04/2013 2049			Analysis Date:	10/04/2013 2106
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	4.91	4.92
Nitrite as N	5.00	5.00	4.73	4.73
Orthophosphate as P	5.00	5.00	4.89	4.96

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194792

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-4	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	121.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2303			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-4	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	122.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2319			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	93	94	80 - 120	1	20		
Nitrite as N	93	93	80 - 120	1	20		
Orthophosphate as P	135	142	80 - 120	5	20	F	F

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194792

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-11	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	133.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/05/2013 0223			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-11	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	134.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/05/2013 0240			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	95	96	80 - 120	0	20		
Nitrite as N	94	95	80 - 120	1	20		
Orthophosphate as P	136	144	80 - 120	6	20	F	F

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194792

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-4	Units: mg/L	MSD Lab Sample ID:	280-47462-4	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/04/2013 2303		Analysis Date:	10/04/2013 2319	
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	0.62	5.00	5.00	5.30		5.32	
Nitrite as N	ND	5.00	5.00	4.63		4.67	
Orthophosphate as P	ND	5.00	5.00	6.75	F	7.08	F

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194792

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-11	Units: mg/L	MSD Lab Sample ID:	280-47462-11	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/05/2013 0223		Analysis Date:	10/05/2013 0240	
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	1.9	5.00	5.00	6.70		6.71	
Nitrite as N	ND	5.00	5.00	4.71		4.76	
Orthophosphate as P	ND	5.00	5.00	6.80	F	7.21	F

Duplicate - Batch: 280-194792 **Method: 300.0**
Preparation: N/A

Lab Sample ID:	280-47462-4	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	120.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2246	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	0.62	0.633	2	15	
Nitrite as N	ND	ND	NC	15	
Orthophosphate as P	ND	ND	NC	15	

Duplicate - Batch: 280-194792 **Method: 300.0**
Preparation: N/A

Lab Sample ID:	280-47462-11	Analysis Batch:	280-194792	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	132.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/05/2013 0206	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	1.9	1.94	0.1	15	
Nitrite as N	ND	ND	NC	15	
Orthophosphate as P	ND	ND	NC	15	

Client: SCS Engineers Job Number: 280-47462-1

Method Blank - Batch: 280-194793

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-194793/6	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2123	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Sulfate	ND		1.0

Method Reporting Limit Check - Batch: 280-194793

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-194793/3	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2033	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	1.00	ND	90	50 - 150	

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-194793

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194793/4	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2049	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-194793/5	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2106	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Sulfate	97	97	90 - 110	0	10		

Client: SCS Engineers

Job Number: 280-47462-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-194793

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194793/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-194793/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/04/2013 2049			Analysis Date:	10/04/2013 2106
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
Sulfate	25.0	25.0	24.2	24.3

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194793

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-4	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	121.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2303			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-4	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	122.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2319			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Sulfate	93	94	80 - 120	1	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194793

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-11	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	133.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/05/2013 0223			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-11	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	134.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/05/2013 0240			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Sulfate	95	96	80 - 120	1	20		

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194793

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-4	Units: mg/L		MSD Lab Sample ID:	280-47462-4
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/04/2013 2303			Analysis Date:	10/04/2013 2319
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
Sulfate	7.9	25.0	25.0	31.3	31.6

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194793

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-47462-11	Units: mg/L		MSD Lab Sample ID:	280-47462-11
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/05/2013 0223			Analysis Date:	10/05/2013 0240
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
Sulfate	11	25.0	25.0	34.7	34.9

Client: SCS Engineers Job Number: 280-47462-1

Duplicate - Batch: 280-194793

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-47462-4	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	120.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2013 2246	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	7.9	7.68	3	15	

Duplicate - Batch: 280-194793

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-47462-11	Analysis Batch:	280-194793	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	132.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/05/2013 0206	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	11	11.0	1	15	

Method Blank - Batch: 280-196103 **Method: 350.1**
Preparation: N/A

Lab Sample ID:	MB 280-196103/21	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1230	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

Method Blank - Batch: 280-196103 **Method: 350.1**
Preparation: N/A

Lab Sample ID:	MB 280-196103/60	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1401	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

Client: SCS Engineers Job Number: 280-47462-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-196103

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-196103/19	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1225	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-196103/20	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1227	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

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

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-196103

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-196103/58	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1356	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-196103/59	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1358	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Ammonia as N	105	105	90 - 110	0	10		

Client: SCS Engineers

Job Number: 280-47462-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-196103

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-196103/19	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-196103/20
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/15/2013 1225			Analysis Date:	10/15/2013 1227
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	2.52	2.53

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-196103

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-196103/58	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-196103/59
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/15/2013 1356			Analysis Date:	10/15/2013 1358
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	2.62	2.63

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-196103

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-47462-2	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1405			Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-2	Analysis Batch:	280-196103	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	E:\FLOW_4\1015.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/15/2013 1408			Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Ammonia as N	111	111	90 - 110	0	10	F	F

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-196103

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-47462-2	Units:	mg/L	MSD Lab Sample ID:	280-47462-2
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/15/2013 1405			Analysis Date:	10/15/2013 1408
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	1.11	F	1.11	F

Method Blank - Batch: 280-195167

Method: 9251
Preparation: N/A

Lab Sample ID:	MB 280-195167/60	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/09/2013 1043	Units:	mg/L	Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Chloride	ND		1.0

Method Blank - Batch: 280-195167

Method: 9251
Preparation: N/A

Lab Sample ID:	MB 280-195167/101	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/09/2013 1134	Units:	mg/L	Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Chloride	ND		1.0

Client: SCS Engineers

Job Number: 280-47462-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-195167

Method: 9251
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195167/58	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/09/2013 1040	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-195167/59	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/09/2013 1041	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chloride	101	102	90 - 110	1	10		

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-195167

Method: 9251
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195167/99	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/09/2013 1132	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-195167/100	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/09/2013 1133	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chloride	102	102	90 - 110	0	10		

Client: SCS Engineers

Job Number: 280-47462-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-195167

Method: 9251
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195167/58	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-195167/59
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/09/2013 1040			Analysis Date:	10/09/2013 1041
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Chloride	50.0	50.0	50.6	51.1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-195167

Method: 9251
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195167/99	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-195167/100
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/09/2013 1132			Analysis Date:	10/09/2013 1133
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Chloride	50.0	50.0	50.8	51.0

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-195167

Method: 9251
Preparation: N/A

MS Lab Sample ID:	280-47462-11	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/09/2013 1139			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-11	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/09/2013 1140			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	97	100	90 - 110	3	10		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-195167

Method: 9251
Preparation: N/A

MS Lab Sample ID:	280-47462-3	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/09/2013 1152			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47462-3	Analysis Batch:	280-195167	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL100913.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	10/09/2013 1153			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	102	102	90 - 110	1	10		

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-195167

Method: 9251
Preparation: N/A

MS Lab Sample ID:	280-47462-11	Units: mg/L		MSD Lab Sample ID:	280-47462-11
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/09/2013 1139			Analysis Date:	10/09/2013 1140
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	4.9	50.0	50.0	53.3	55.1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-195167

Method: 9251
Preparation: N/A

MS Lab Sample ID:	280-47462-3	Units: mg/L		MSD Lab Sample ID:	280-47462-3
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/09/2013 1152			Analysis Date:	10/09/2013 1153
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	8.5	50.0	50.0	59.8	59.3

Client: SCS Engineers Job Number: 280-47462-1

Method Blank - Batch: 280-195456

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-195456/60	Analysis Batch:	280-195456	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101013a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2013 1817	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

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

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-195456

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195456/58	Analysis Batch:	280-195456	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101013a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2013 1808	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-195456/59	Analysis Batch:	280-195456	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101013a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2013 1813	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Alkalinity	99	100	90 - 110	0	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-195456

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195456/58	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-195456/59
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/10/2013 1808			Analysis Date:	10/10/2013 1813
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 Alkalinity	200	200	199	199

Client: SCS Engineers

Job Number: 280-47462-1

Duplicate - Batch: 280-195456

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-47462-2	Analysis Batch:	280-195456	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101013a.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/10/2013 1841	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	140	144	1	10	

Client: SCS Engineers Job Number: 280-47462-1

Method Blank - Batch: 280-195669

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-195669/6	Analysis Batch:	280-195669	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/11/2013 1310	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

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

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-195669

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195669/4	Analysis Batch:	280-195669	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/11/2013 1300	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-195669/5	Analysis Batch:	280-195669	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/11/2013 1306	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Alkalinity	99	99	90 - 110	0	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-195669

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-195669/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-195669/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/11/2013 1300			Analysis Date:	10/11/2013 1306
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 Alkalinity	200	200	197	197

Client: SCS Engineers

Job Number: 280-47462-1

Duplicate - Batch: 280-195669

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-47462-11	Analysis Batch:	280-195669	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/11/2013 1407	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	86	85.9	0.4	10	

Method Blank - Batch: 280-194794 **Method: SM 5310B**
Preparation: N/A

Lab Sample ID:	MB 280-194794/5	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/06/2013 1816	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Total Organic Carbon - Average	ND		1.0

Method Blank - Batch: 280-194794 **Method: SM 5310B**
Preparation: N/A

Lab Sample ID:	MB 280-194794/37	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/07/2013 0415	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

Client: SCS Engineers Job Number: 280-47462-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194794/3	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/06/2013 1739	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-194794/4	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/06/2013 1758	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

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

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194794/35	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/07/2013 0337	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-194794/36	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/07/2013 0355	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Organic Carbon - Average	101	101	88 - 112	0	15		

Client: SCS Engineers

Job Number: 280-47462-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194794/3	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-194794/4
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/06/2013 1739			Analysis Date:	10/06/2013 1758
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	24.9	25.0

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-194794/35	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-194794/36
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/07/2013 0337			Analysis Date:	10/07/2013 0355
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	25.2	25.2

Client: SCS Engineers Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-47379-C-1 MS	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/06/2013 1906			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47379-C-1 MSD	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/06/2013 1924			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	100	101	88 - 112	1	15		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-47382-C-1 MS	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/07/2013 0937			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-47382-C-1 MSD	Analysis Batch:	280-194794	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	100613.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/07/2013 0956			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	99	100	88 - 112	1	15		

Client: SCS Engineers

Job Number: 280-47462-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-47379-C-1 MS	Units: mg/L	MSD Lab Sample ID:	280-47379-C-1 MSD	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/06/2013 1906		Analysis Date:	10/06/2013 1924	
Prep Date:	N/A		Prep Date:	N/A	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Total Organic Carbon - Average	ND	25.0	25.0	25.7	25.9

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-194794

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-47382-C-1 MS	Units: mg/L	MSD Lab Sample ID:	280-47382-C-1 MSD	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/07/2013 0937		Analysis Date:	10/07/2013 0956	
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	2.6	25.0	25.0	27.3	27.7

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-1 **Client ID: MW-7**

Sample Date/Time: 10/03/2013 09:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-1		480-144252		10/11/2013 14:04	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-1		480-144252		10/11/2013 14:04	1	TAL BUF	TRB
P:3005A	280-47462-D-1-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-1-A		280-195115	280-194806	10/09/2013 06:10	1	TAL DEN	TEL
A:300.0	280-47462-A-1		280-194792		10/04/2013 21:39	1	TAL DEN	TLP
A:300.0	280-47462-A-1		280-194793		10/04/2013 21:39	1	TAL DEN	TLP
A:350.1	280-47462-C-1		280-196103		10/15/2013 13:54	1	TAL DEN	AJA
A:9251	280-47462-A-1		280-195167		10/09/2013 11:11	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-1		280-195456		10/10/2013 18:32	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-1		280-194794		10/07/2013 10:15	1	TAL DEN	DFB

Lab ID: 280-47462-1 MS **Client ID: MW-7**

Sample Date/Time: 10/03/2013 09:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-47462-D-1-B MS		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-1-B MS		280-195115	280-194806	10/09/2013 06:19	1	TAL DEN	TEL

Lab ID: 280-47462-1 MSD **Client ID: MW-7**

Sample Date/Time: 10/03/2013 09:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-47462-D-1-C MSD		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-1-C MSD		280-195115	280-194806	10/09/2013 06:22	1	TAL DEN	TEL

Lab ID: 280-47462-2 **Client ID: MW-6**

Sample Date/Time: 10/03/2013 10:34 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-2		480-144252		10/11/2013 14:28	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-2		480-144252		10/11/2013 14:28	1	TAL BUF	TRB
P:3005A	280-47462-D-2-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-2-A		280-195115	280-194806	10/09/2013 06:26	1	TAL DEN	TEL
A:300.0	280-47462-A-2		280-194792		10/04/2013 21:56	1	TAL DEN	TLP
A:300.0	280-47462-A-2		280-194793		10/04/2013 21:56	1	TAL DEN	TLP
A:350.1	280-47462-B-2		280-196103		10/15/2013 14:03	1	TAL DEN	AJA
A:9251	280-47462-A-2		280-195167		10/09/2013 11:13	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-2		280-195456		10/10/2013 18:36	1	TAL DEN	AFH
A:SM 5310B	280-47462-B-2		280-194794		10/07/2013 10:31	1	TAL DEN	DFB

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-2 MS **Client ID:** MW-6

Sample Date/Time: 10/03/2013 10:34 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-47462-B-2 MS		280-196103		10/15/2013 14:05	1	TAL DEN	AJA

Lab ID: 280-47462-2 MSD **Client ID:** MW-6

Sample Date/Time: 10/03/2013 10:34 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-47462-B-2 MSD		280-196103		10/15/2013 14:08	1	TAL DEN	AJA

Lab ID: 280-47462-2 DU **Client ID:** MW-6

Sample Date/Time: 10/03/2013 10:34 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 2320B	280-47462-A-2 DU		280-195456		10/10/2013 18:41	1	TAL DEN	AFH

Lab ID: 280-47462-3 **Client ID:** MW-14

Sample Date/Time: 10/03/2013 11:33 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-3		480-144252		10/11/2013 14:52	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-3		480-144252		10/11/2013 14:52	1	TAL BUF	TRB
P:3005A	280-47462-D-3-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-3-A		280-195115	280-194806	10/09/2013 06:29	1	TAL DEN	TEL
A:300.0	280-47462-A-3		280-194792		10/04/2013 22:13	1	TAL DEN	TLP
A:300.0	280-47462-A-3		280-194793		10/04/2013 22:13	1	TAL DEN	TLP
A:350.1	280-47462-C-3		280-196103		10/15/2013 14:10	1	TAL DEN	AJA
A:9251	280-47462-A-3		280-195167		10/09/2013 11:14	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-3		280-195456		10/10/2013 18:46	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-3		280-194794		10/07/2013 10:51	1	TAL DEN	DFB

Lab ID: 280-47462-3 MS **Client ID:** MW-14

Sample Date/Time: 10/03/2013 11:33 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:9251	280-47462-A-3 MS		280-195167		10/09/2013 11:52	1	TAL DEN	AJA

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-3 MSD **Client ID:** MW-14

Sample Date/Time: 10/03/2013 11:33 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:9251	280-47462-A-3 MSD		280-195167		10/09/2013 11:53	1	TAL DEN	AJA

Lab ID: 280-47462-4 **Client ID:** MW-5

Sample Date/Time: 10/03/2013 12:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-4		480-144252		10/11/2013 15:16	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-4		480-144252		10/11/2013 15:16	1	TAL BUF	TRB
P:3005A	280-47462-D-4-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-4-A		280-195115	280-194806	10/09/2013 06:32	1	TAL DEN	TEL
A:300.0	280-47462-A-4		280-194792		10/04/2013 22:29	1	TAL DEN	TLP
A:300.0	280-47462-A-4		280-194793		10/04/2013 22:29	1	TAL DEN	TLP
A:350.1	280-47462-C-4		280-196103		10/15/2013 14:24	1	TAL DEN	AJA
A:9251	280-47462-A-4		280-195167		10/09/2013 11:18	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-4		280-195456		10/10/2013 18:50	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-4		280-194794		10/07/2013 11:06	1	TAL DEN	DFB

Lab ID: 280-47462-4 MS **Client ID:** MW-5

Sample Date/Time: 10/03/2013 12:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-47462-A-4 MS		280-194792		10/04/2013 23:03	1	TAL DEN	TLP
A:300.0	280-47462-A-4 MS		280-194793		10/04/2013 23:03	1	TAL DEN	TLP

Lab ID: 280-47462-4 MSD **Client ID:** MW-5

Sample Date/Time: 10/03/2013 12:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-47462-A-4 MSD		280-194792		10/04/2013 23:19	1	TAL DEN	TLP
A:300.0	280-47462-A-4 MSD		280-194793		10/04/2013 23:19	1	TAL DEN	TLP

Lab ID: 280-47462-4 DU **Client ID:** MW-5

Sample Date/Time: 10/03/2013 12:24 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-47462-A-4 DU		280-194792		10/04/2013 22:46	1	TAL DEN	TLP
A:300.0	280-47462-A-4 DU		280-194793		10/04/2013 22:46	1	TAL DEN	TLP

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-5 **Client ID: MW-20DD**

Sample Date/Time: 10/03/2013 10:34 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-5		480-144252		10/11/2013 15:41	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-5		480-144252		10/11/2013 15:41	1	TAL BUF	TRB
P:3005A	280-47462-D-5-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-5-A		280-195115	280-194806	10/09/2013 06:41	1	TAL DEN	TEL
A:300.0	280-47462-A-5		280-194792		10/04/2013 23:36	1	TAL DEN	TLP
A:300.0	280-47462-A-5		280-194793		10/04/2013 23:36	1	TAL DEN	TLP
A:350.1	280-47462-C-5		280-196103		10/15/2013 14:26	1	TAL DEN	AJA
A:9251	280-47462-A-5		280-195167		10/09/2013 11:19	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-5		280-195456		10/10/2013 18:55	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-5		280-194794		10/07/2013 11:22	1	TAL DEN	DFB

Lab ID: 280-47462-6 **Client ID: MW-13D**

Sample Date/Time: 10/03/2013 13:18 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-6		480-144252		10/11/2013 16:05	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-6		480-144252		10/11/2013 16:05	1	TAL BUF	TRB
P:3005A	280-47462-D-6-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-6-A		280-195115	280-194806	10/09/2013 06:44	1	TAL DEN	TEL
A:300.0	280-47462-A-6		280-194792		10/04/2013 23:53	1	TAL DEN	TLP
A:300.0	280-47462-A-6		280-194793		10/04/2013 23:53	1	TAL DEN	TLP
A:350.1	280-47462-C-6		280-196103		10/15/2013 14:29	1	TAL DEN	AJA
A:9251	280-47462-A-6		280-195167		10/09/2013 11:20	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-6		280-195456		10/10/2013 19:00	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-6		280-194794		10/07/2013 11:39	1	TAL DEN	DFB

Lab ID: 280-47462-7 **Client ID: MW-12I**

Sample Date/Time: 10/03/2013 14:02 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-7		480-144252		10/11/2013 16:29	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-7		480-144252		10/11/2013 16:29	1	TAL BUF	TRB
P:3005A	280-47462-D-7-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-7-A		280-195115	280-194806	10/09/2013 06:47	1	TAL DEN	TEL
A:300.0	280-47462-A-7		280-194792		10/05/2013 00:10	1	TAL DEN	TLP
A:300.0	280-47462-A-7		280-194793		10/05/2013 00:10	1	TAL DEN	TLP
A:350.1	280-47462-C-7		280-196103		10/15/2013 14:31	1	TAL DEN	AJA
A:9251	280-47462-A-7		280-195167		10/09/2013 11:21	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-7		280-195456		10/10/2013 19:05	1	TAL DEN	AFH
A:SM 5310B	280-47462-B-7		280-194794		10/06/2013 19:41	1	TAL DEN	DFB

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-8 **Client ID:** SW-7

Sample Date/Time: 10/03/2013 09:35 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-8		480-144252		10/11/2013 16:53	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-8		480-144252		10/11/2013 16:53	1	TAL BUF	TRB
P:3005A	280-47462-D-8-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-8-A		280-195115	280-194806	10/09/2013 06:50	1	TAL DEN	TEL
A:300.0	280-47462-A-8		280-194792		10/05/2013 01:00	1	TAL DEN	TLP
A:300.0	280-47462-A-8		280-194793		10/05/2013 01:00	1	TAL DEN	TLP
A:350.1	280-47462-B-8		280-196103		10/15/2013 14:33	1	TAL DEN	AJA
A:9251	280-47462-A-8		280-195167		10/09/2013 11:23	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-8		280-195669		10/11/2013 13:47	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-8		280-194794		10/06/2013 19:58	1	TAL DEN	DFB

Lab ID: 280-47462-9 **Client ID:** SW-6

Sample Date/Time: 10/03/2013 10:15 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-9		480-144252		10/11/2013 17:17	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-9		480-144252		10/11/2013 17:17	1	TAL BUF	TRB
P:3005A	280-47462-D-9-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-9-A		280-195115	280-194806	10/09/2013 06:53	1	TAL DEN	TEL
A:300.0	280-47462-A-9		280-194792		10/05/2013 01:16	1	TAL DEN	TLP
A:300.0	280-47462-A-9		280-194793		10/05/2013 01:16	1	TAL DEN	TLP
A:350.1	280-47462-B-9		280-196103		10/15/2013 14:36	1	TAL DEN	AJA
A:9251	280-47462-A-9		280-195167		10/09/2013 11:35	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-9		280-195669		10/11/2013 13:52	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-9		280-194794		10/06/2013 20:16	1	TAL DEN	DFB

Lab ID: 280-47462-10 **Client ID:** SW-4

Sample Date/Time: 10/03/2013 10:40 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-10		480-144252		10/11/2013 17:41	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-10		480-144252		10/11/2013 17:41	1	TAL BUF	TRB
P:3005A	280-47462-D-10-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-10-A		280-195115	280-194806	10/09/2013 06:56	1	TAL DEN	TEL
A:300.0	280-47462-A-10		280-194792		10/05/2013 01:33	1	TAL DEN	TLP
A:300.0	280-47462-A-10		280-194793		10/05/2013 01:33	1	TAL DEN	TLP
A:350.1	280-47462-C-10		280-196103		10/15/2013 14:38	1	TAL DEN	AJA
A:9251	280-47462-A-10		280-195167		10/09/2013 11:37	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-10		280-195669		10/11/2013 13:57	1	TAL DEN	AFH
A:SM 5310B	280-47462-B-10		280-194794		10/06/2013 20:36	1	TAL DEN	DFB

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-11 **Client ID: SW-1**

Sample Date/Time: 10/03/2013 13:55 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-F-11		480-144252		10/11/2013 18:05	1	TAL BUF	TRB
A:8260B SIM	280-47462-F-11		480-144252		10/11/2013 18:05	1	TAL BUF	TRB
P:3005A	280-47462-D-11-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	280-47462-D-11-A		280-195115	280-194806	10/09/2013 07:00	1	TAL DEN	TEL
A:300.0	280-47462-A-11		280-194792		10/05/2013 01:50	1	TAL DEN	TLP
A:300.0	280-47462-A-11		280-194793		10/05/2013 01:50	1	TAL DEN	TLP
A:350.1	280-47462-B-11		280-196103		10/15/2013 14:40	1	TAL DEN	AJA
A:9251	280-47462-A-11		280-195167		10/09/2013 11:38	1	TAL DEN	AJA
A:SM 2320B	280-47462-A-11		280-195669		10/11/2013 14:02	1	TAL DEN	AFH
A:SM 5310B	280-47462-C-11		280-194794		10/06/2013 20:53	1	TAL DEN	DFB

Lab ID: 280-47462-11 MS **Client ID: SW-1**

Sample Date/Time: 10/03/2013 13:55 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-47462-A-11 MS		280-194792		10/05/2013 02:23	1	TAL DEN	TLP
A:300.0	280-47462-A-11 MS		280-194793		10/05/2013 02:23	1	TAL DEN	TLP
A:9251	280-47462-A-11 MS		280-195167		10/09/2013 11:39	1	TAL DEN	AJA

Lab ID: 280-47462-11 MSD **Client ID: SW-1**

Sample Date/Time: 10/03/2013 13:55 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-47462-A-11 MSD		280-194792		10/05/2013 02:40	1	TAL DEN	TLP
A:300.0	280-47462-A-11 MSD		280-194793		10/05/2013 02:40	1	TAL DEN	TLP
A:9251	280-47462-A-11 MSD		280-195167		10/09/2013 11:40	1	TAL DEN	AJA

Lab ID: 280-47462-11 DU **Client ID: SW-1**

Sample Date/Time: 10/03/2013 13:55 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-47462-A-11 DU		280-194792		10/05/2013 02:06	1	TAL DEN	TLP
A:300.0	280-47462-A-11 DU		280-194793		10/05/2013 02:06	1	TAL DEN	TLP
A:SM 2320B	280-47462-A-11 DU		280-195669		10/11/2013 14:07	1	TAL DEN	AFH

Client: SCS Engineers Job Number: 280-47462-1

Laboratory Chronicle

Lab ID: 280-47462-12 **Client ID:** TRIP BLANK

Sample Date/Time: 10/03/2013 00:00 Received Date/Time: 10/04/2013 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-47462-A-12		480-144252		10/11/2013 18:29	1	TAL BUF	TRB
A:8260B SIM	280-47462-A-12		480-144252		10/11/2013 18:29	1	TAL BUF	TRB

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:5030B	MB 480-144252/12		480-144252		10/11/2013 13:35	1	TAL BUF	TRB
A:8260B SIM	MB 480-144252/12		480-144252		10/11/2013 13:35	1	TAL BUF	TRB
P:3005A	MB 280-194806/1-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	MB 280-194806/1-A		280-195115	280-194806	10/09/2013 06:04	1	TAL DEN	TEL
A:300.0	MB 280-194792/6		280-194792		10/04/2013 21:23	1	TAL DEN	TLP
A:300.0	MB 280-194793/6		280-194793		10/04/2013 21:23	1	TAL DEN	TLP
A:350.1	MB 280-196103/21		280-196103		10/15/2013 12:30	1	TAL DEN	AJA
A:350.1	MB 280-196103/60		280-196103		10/15/2013 14:01	1	TAL DEN	AJA
A:9251	MB 280-195167/60		280-195167		10/09/2013 10:43	1	TAL DEN	AJA
A:9251	MB 280-195167/101		280-195167		10/09/2013 11:34	1	TAL DEN	AJA
A:SM 2320B	MB 280-195456/60		280-195456		10/10/2013 18:17	1	TAL DEN	AFH
A:SM 2320B	MB 280-195669/6		280-195669		10/11/2013 13:10	1	TAL DEN	AFH
A:SM 5310B	MB 280-194794/5		280-194794		10/06/2013 18:16	1	TAL DEN	DFB
A:SM 5310B	MB 280-194794/37		280-194794		10/07/2013 04:15	1	TAL DEN	DFB

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:5030B	LCS 480-144252/10		480-144252		10/11/2013 12:46	1	TAL BUF	TRB
A:8260B SIM	LCS 480-144252/10		480-144252		10/11/2013 12:46	1	TAL BUF	TRB
P:3005A	LCS 280-194806/2-A		280-195115	280-194806	10/08/2013 12:00	1	TAL DEN	WAW
A:6020	LCS 280-194806/2-A		280-195115	280-194806	10/09/2013 06:07	1	TAL DEN	TEL
A:300.0	LCS 280-194792/4		280-194792		10/04/2013 20:49	1	TAL DEN	TLP
A:300.0	LCS 280-194793/4		280-194793		10/04/2013 20:49	1	TAL DEN	TLP
A:350.1	LCS 280-196103/19		280-196103		10/15/2013 12:25	1	TAL DEN	AJA
A:350.1	LCS 280-196103/58		280-196103		10/15/2013 13:56	1	TAL DEN	AJA
A:9251	LCS 280-195167/58		280-195167		10/09/2013 10:40	1	TAL DEN	AJA
A:9251	LCS 280-195167/99		280-195167		10/09/2013 11:32	1	TAL DEN	AJA
A:SM 2320B	LCS 280-195456/58		280-195456		10/10/2013 18:08	1	TAL DEN	AFH
A:SM 2320B	LCS 280-195669/4		280-195669		10/11/2013 13:00	1	TAL DEN	AFH
A:SM 5310B	LCS 280-194794/3		280-194794		10/06/2013 17:39	1	TAL DEN	DFB
A:SM 5310B	LCS 280-194794/35		280-194794		10/07/2013 03:37	1	TAL DEN	DFB

Client: SCS Engineers Job Number: 280-47462-1

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:5030B	LCSD 480-144252/11		480-144252		10/11/2013 13:11	1	TAL BUF	TRB
A:8260B SIM	LCSD 480-144252/11		480-144252		10/11/2013 13:11	1	TAL BUF	TRB
A:300.0	LCSD 280-194792/5		280-194792		10/04/2013 21:06	1	TAL DEN	TLP
A:300.0	LCSD 280-194793/5		280-194793		10/04/2013 21:06	1	TAL DEN	TLP
A:350.1	LCSD 280-196103/20		280-196103		10/15/2013 12:27	1	TAL DEN	AJA
A:350.1	LCSD 280-196103/59		280-196103		10/15/2013 13:58	1	TAL DEN	AJA
A:9251	LCSD 280-195167/59		280-195167		10/09/2013 10:41	1	TAL DEN	AJA
A:9251	LCSD 280-195167/100		280-195167		10/09/2013 11:33	1	TAL DEN	AJA
A:SM 2320B	LCSD 280-195456/59		280-195456		10/10/2013 18:13	1	TAL DEN	AFH
A:SM 2320B	LCSD 280-195669/5		280-195669		10/11/2013 13:06	1	TAL DEN	AFH
A:SM 5310B	LCSD 280-194794/4		280-194794		10/06/2013 17:58	1	TAL DEN	DFB
A:SM 5310B	LCSD 280-194794/36		280-194794		10/07/2013 03:55	1	TAL DEN	DFB

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 280-194792/3		280-194792		10/04/2013 20:33	1	TAL DEN	TLP
A:300.0	MRL 280-194793/3		280-194793		10/04/2013 20:33	1	TAL DEN	TLP

Lab ID: MS **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:SM 5310B	280-47379-C-1 MS		280-194794		10/06/2013 19:06	1	TAL DEN	DFB
A:SM 5310B	280-47382-C-1 MS		280-194794		10/07/2013 09:37	1	TAL DEN	DFB

Lab ID: MSD **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:SM 5310B	280-47379-C-1 MSD		280-194794		10/06/2013 19:24	1	TAL DEN	DFB
A:SM 5310B	280-47382-C-1 MSD		280-194794		10/07/2013 09:56	1	TAL DEN	DFB

Lab References:

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver

Analytical Resources, Incorporated
Analytical Chemists and Consultants

17 October 2013

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

RE: Project: Hansville
ARI Job No.: XI43

Dear Betsy:

Please find enclosed the original Chain of Custody (COC) documentation and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted eleven water samples on October 4, 2013. 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 XI43

MDH/mdh

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XT-43	Turn-around Requested: Standard	Date: 9/4/13	
ARI Client Company: SCS Engineers	Phone: 425-289-5455	Page: 1 of 1	
Client Contact: Dan Venchiarutti		No. of Coolers:	Cooler Temps:
Client Project Name: Hansville LF			
Client Project # 04211017.02	Samplers: Matt O'Hare and Andrew McDonald		

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

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: Low level Arsenic	Notes/Comments
MW-7	10/3/2013	0924	W	1	x	
MW-6	10/3/2013	1034	W	1	x	
MW-14	10/3/2013	1133	W	1	x	
MW-5	10/3/2013	1224	W	1	x	
MW-20DD	10/3/2013	1034	W	1	x	
MW-13D	10/3/2013	1318	W	1	x	
MW-12I	10/3/2013	1402	W	1	x	
SW-7	10/3/2013	0935	W	1	x	
SW-6	10/3/2013	1015	W	1	x	
SW-4	10/3/2013	1040	W	1	x	
SW-1	10/3/2013	1355	W	1	x	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Matt O'Hare	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: SCS	Company: ARI	Company:	Company:
	Date & Time: 10/4/13	Date & Time: 10/4/13 1240	Date & Time:	Date & Time:

XT43 : 00002

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SCS Engineering Project Name: Hansville LF

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

Assigned ARI Job No: XI43 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) 3.3

Time 1330

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by _____ Date: 10/9/13 Time: 1240

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? (YES) NO

What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:_____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA (YES) NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI... (NA) _____

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

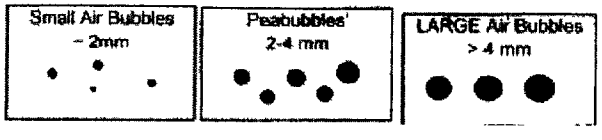
Samples Logged by: _____ Date: 10-4-13 Time: 1403

***** 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

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XI43
Client: Test America
Project Event: 04211017.02
Project Name: Hansville LF

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-7	XI43A	13-21501	Water	10/03/13 09:24	10/04/13 12:40
2.	MW-6	XI43B	13-21502	Water	10/03/13 10:34	10/04/13 12:40
3.	MW-14	XI43C	13-21503	Water	10/03/13 11:33	10/04/13 12:40
4.	MW-5	XI43D	13-21504	Water	10/03/13 12:24	10/04/13 12:40
5.	MW-20DD	XI43E	13-21505	Water	10/03/13 10:34	10/04/13 12:40
6.	MW-13D	XI43F	13-21506	Water	10/03/13 13:18	10/04/13 12:40
7.	MW-12I	XI43G	13-21507	Water	10/03/13 14:02	10/04/13 12:40
8.	SW-7	XI43H	13-21508	Water	10/03/13 09:35	10/04/13 12:40
9.	SW-6	XI43I	13-21509	Water	10/03/13 10:45	10/04/13 12:40
10.	SW-4	XI43J	13-21510	Water	10/03/13 10:40	10/04/13 12:40
11.	SW-1	XI43K	13-21511	Water	10/03/13 13:55	10/04/13 12:40

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-7
SAMPLE

Lab Sample ID: XI43A
LIMS ID: 13-21501
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/14/13	**7440-38-2**	**Arsenic**	0.00004	**0.00094**	

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00008

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-7
DUPLICATE

Lab Sample ID: XI43A
LIMS ID: 13-21501
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	0.00094	0.00096	2.1%	+/- 20%	

Reported in mg/L

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

XI43:00009

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-7
MATRIX SPIKE

Lab Sample ID: XI43A
LIMS ID: 13-21501
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	0.00094	0.00515	0.005	84.2%	

Reported in mg/L

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

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: XI43B
LIMS ID: 13-21502
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/14/13	**7440-38-2**	**Arsenic**	0.0001	**0.0023**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-14
SAMPLE

Lab Sample ID: XI43C
LIMS ID: 13-21503
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/14/13	**7440-38-2**	**Arsenic**	0.00004	**0.0158**	

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00012

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5
SAMPLE

Lab Sample ID: XI43D
LIMS ID: 13-21504
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/15/13	**7440-38-2**	**Arsenic**	0.0002	**0.0021**	

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00013

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-20DD
SAMPLE

Lab Sample ID: XI43E
LIMS ID: 13-21505
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/14/13	**7440-38-2**	**Arsenic**	0.0001	**0.0024**	

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00014

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-13D
SAMPLE

Lab Sample ID: XI43F
LIMS ID: 13-21506
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/14/13	**7440-38-2**	**Arsenic**	0.00004	**0.00301**	

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-12I
SAMPLE

Lab Sample ID: XI43G
LIMS ID: 13-21507
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/15/13	**7440-38-2**	**Arsenic**	0.0002	**0.0022**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-7
SAMPLE

Lab Sample ID: XI43H
LIMS ID: 13-21508
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/15/13	**7440-38-2**	**Arsenic**	0.0002	**0.0016**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-6
SAMPLE

Lab Sample ID: XI43I
LIMS ID: 13-21509
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/15/13	**7440-38-2**	**Arsenic**	0.0002	**0.0031**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-4
SAMPLE

Lab Sample ID: XI43J
LIMS ID: 13-21510
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/16/13	**7440-38-2**	**Arsenic**	0.0002	**0.0026**	

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00019

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-1
SAMPLE

Lab Sample ID: XI43K
LIMS ID: 13-21511
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: 10/03/13
Date Received: 10/04/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/15/13	**7440-38-2**	**Arsenic**	0.0002	**0.0017**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: XI43MB
LIMS ID: 13-21502
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
200.8	10/07/13	200.8	10/14/13	7440-38-2	Arsenic	0.00004	0.00004	U

U-Analyte undetected at given RL
RL-Reporting Limit

XI43:00021

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**
Page 1 of 1

Lab Sample ID: XI43LCS
LIMS ID: 13-21502
Matrix: Water
Data Release Authorized:
Reported: 10/17/13

QC Report No: XI43-Test America
Project: Hansville LF
04211017.02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	0.00445	0.00500	89.0%	

Reported in mg/L

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

XI43:00022

Test/
4955 Ye
Arvada,
Phone (280-47462 Chain of

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: M. O'Hare & A. McDonald	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Dan Venchiarutti	Phone: 425-746-4600	E-Mail: betsy.sara@testamericainc.com		Page: Page 1 of 2
Company: SCS Engineers				Job #: 04211017.02
Address: 2405 140th Avenue NE Suite 107	Due Date Requested: Standard			
City: Bellevue	TAT Requested (days): Standard			
State, Zip: WA, 98005-1877				
Phone: 425-289-5455	PO #: Purchase Order not required			
Email: DVenchiarutti@SCSengineers.com	WO #:			
Project Name: Hansville Landfill	Project #: 28006013 - 4Q13 Sampling			
Site: Washington	SSOW#:			

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4/NO3/NO3(IC)	Ortho-phosphate (field filtered)	Dissolved Arsenice (ARI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	S	N	N	D		
MW-7	10/3/13	0924	C	W			X	X	X	X	X	X		Short Holds: NO3/NO2(IC), Orthophosphate (IC)
MW-6		1034												
MW-14		1133												Dissolved Arsenic subbed direct to ARI
MW-5		1224												
MW-20DD		1034												
MW-13D		1318												
MW-12I		1402												
SW-7		0935	G											
SW-6		1015												
SW-4		1040												
SW-1		1355					X	X	X	X	X	X		

Page 116 of 119

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Matt O'Hare	10/3/13 1600	SCS		10/4/13 900	TAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact. △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.1 IR3 10-4-13

35044

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: M. O'Hare & A. McDonald	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Dan Venchiarutti	Phone:	E-Mail: betsy.sara@testamericainc.com		Page: 2 of 2
Company: SCS Engineers				Job #: 04211017.02

Address: 2405 140th Avenue NE Suite 107	Due Date Requested: Standard	Analysis Requested
City: Bellevue	TAT Requested (days): Standard	
State, Zip: WA, 98005-1877		
Phone: 425-289-5455	PO #: Purchase Order not required	
Email: DVenchiarutti@scsengineers.com	WO #:	
Project Name: Hansville Landfill	Project #: 28006013 - 4Q13 Sampling	
Site: Washington	SSOW#:	

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4/NO3/NO3(IC)	Ortho-phosphate (field filtered)	Dissolved Arsenice (ARI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	S	N	N	D		
Trip Blank	—	—	—	—			X							Short Holds: NO3/NO2(IC), Orthophosphate (IC)
														Dissolved Arsenic subbed direct to ARI

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Matt O'Hare	10/3/13 1500	SCS		10/4/13 900	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-47462-1

Login Number: 47462

List Source: TestAmerica Denver

List Number: 1

Creator: Branda, Alex N

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	
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: 280-47462-1

Login Number: 47462
List Number: 1
Creator: Kinecki, Kenneth P

List Source: TestAmerica Buffalo
List Creation: 10/08/13 05:21 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	
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	TA Denver
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
2013 Landfill Inspection Reports

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H-1.1.2

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

February 14, 2013

Keli McKay-Means
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2013 1st QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKay-Means:

The Kitsap Public Health District is writing to relay the results of the 1st 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 February 1, 2013. The facility was in compliance with state and local solid waste regulations.

The following items were noted or discussed during the inspection:

- We discussed a post closure permit a longer inspection interval.
- The landfill facility looks good.

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

enc: Inspection form

cc: Project file

H-1.1.2

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

May 14, 2013

Keli McKay-Means
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2013 2nd QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKay-Means:

The Kitsap Public Health District is writing to relay the results of the 2nd 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 May 13, 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 is in process with the Health District.
- The facility is to be mowed.
- Keli discussed the landfill gas blower system and the need to upgrade it in the future.
- We discussed the need for the facility post closure plan to be upgraded.
- The inspection form for the facility was emailed on May 13, 2013.

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

A-1.1.2

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

August 13, 2013

Keli McKay-Means
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: 2013 3rd QUARTER HANSVILLE LANDFILL INSPECTION

Dear Ms. McKay-Means:

The Kitsap Public Health District is writing to relay the results of the 2nd 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 August 9, 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.
- We discussed the need for a survey of the landfill as there is no initial survey in the files.
- The landfill was recently mowed.
- We discussed the landfill gas blower system and the plans to upgrade it in the future.
- The next inspection is scheduled for November 2013.

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

H-1.1.2

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-337-5235

November 21, 2013

Keli McKay-Means
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

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