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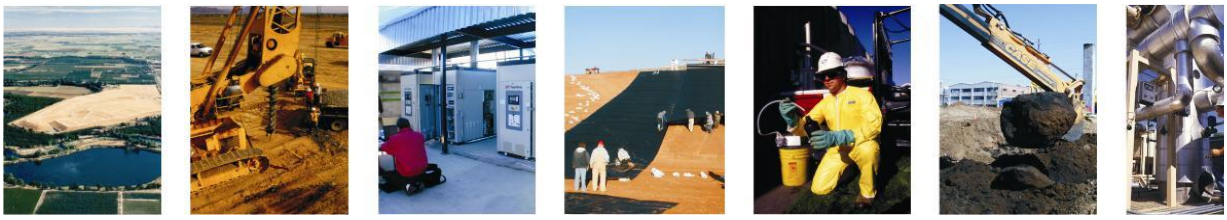

2011 Annual Monitoring Report

Remedial Action at the Hansville Landfill

Kitsap County, WA

Presented to:

KITSAP COUNTY/
WASTE MANAGEMEMENT OF WASHINGTON, INC

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February 21, 2012
Project No. 04211017.00
File: 2011 Annual Report - Hansville Landfill.ver0.2

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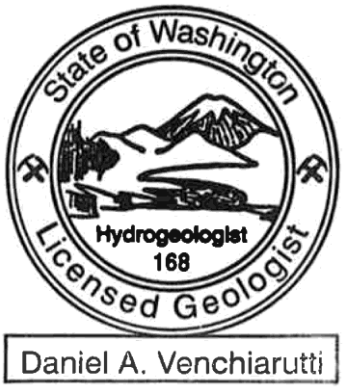

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ACRONYMS

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-msl	feet above mean sea level
GP	gas probe
HDPE	high density polyethylene
KCSL	Kitsap County Sanitary Landfill
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 Boundary	Total area and facilities encompassed by the Hansville Landfill property
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 (Is this right?)
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
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 report describes the results of quarterly environmental monitoring (groundwater, surface water, and landfill gas) conducted at the Hansville Landfill Site during 2011. Groundwater and surface water were sampled quarterly in January, April, July, and October, respectively. Landfill gas measurements were generally recorded on a monthly basis. It should be noted that landfill monitoring and gas system operation and maintenance (O&M) activities were performed through April 2011 by Parametrix. In May 2011, SCS Engineers (SCS) began performing the quarterly landfill monitoring and O&M for the landfill. This work was conducted on behalf of Kitsap County (the County) and Waste Management of Washington, Inc. (WMW).

It should also be noted that beginning with Quarter 4 (October - December 2011), the site monitoring program transitioned to that defined under the final Cleanup Action Plan (CAP) for the Hansville Landfill. The CAP, which was approved in August 2011, is the central component of 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.

Based on the FS findings, 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. As previously mentioned, compliance monitoring under the CAP was initiated during the fourth quarter of the 2011 reporting period.

1.2 REPORT CONTENTS

This report includes:

- A Site description and background sections. Figure 1 shows the Landfill Property location (Appendix A).
- A summary of the 2011 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 2011 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 2011. It should be noted that a groundwater contour map was not prepared for the first quarter 2011 (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 2011 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 2011 (Appendix C).
- Field report forms and laboratory analytical reports (including data validation summaries) for the fourth quarter 2011 (Appendix E and F, respectively).

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 173-23.340-200.

2.0 SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The Site subject to the CAP and subject to the monitoring included 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 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 immediately 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 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 in these wells 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 three wells (MW-7 through MW-12) during Phase I, and five 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 has 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 SIM. Volatile organic compounds (VOCs) are sampled and analyzed annually.
- 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.

As detailed below in Section 2.4, the water quality monitoring program was further modified immediately before the fourth quarter 2011, to comply with the final CAP.

2.3.2 Landfill Gas

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

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

The landfill gas control system layout is shown on Figure 3 (Appendix A). Four gas probes (GP-1 through GP-4) were initially installed on the property in 1990 to monitor landfill gas migration. An additional gas 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 gas was increased to quarterly in 1987 and monthly in 1991.

Two additional gas 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 landfill gas 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.

Routine landfill gas 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 requires that quarterly landfill gas 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 landfill gas 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) extraction well/trench ports, two (2) blower/flare ports, and seven (7) perimeter gas 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. Landfill gas 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 GROUNDWATER AND SURFACE WATER MONITORING

Water quality monitoring for groundwater and surface water was conducted by Parametrix for the first two quarters of 2011 on January 25-26 and April 13-14. The final two quarters of 2011 water quality monitoring were competed by SCS on July 23 and October 4. Dual sampling crews were utilized by SCS, which permitted the water quality monitoring activities to be completed during the course of a single field day. With the completion of the RI/FS and a new phase of the project beginning, the County and WMW released a Request for Qualifications (RFQ) for CAP implementation. Through the extensive RFQ process, SCS was selected for CAP implementation to begin in spring 2011. However, due to the extended time period to finalize the amended Consent Decree and CAP, SCS completed the Ecology-directed sampling and reporting until the start of CAP implementation in fourth quarter.

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. (Fife, Washington and Denver Colorado) for chemical analysis, except fecal and total coliform, which were sent to Twiss Analytical, Inc. in Poulsbo, Washington. Groundwater and surface water samples collected during the first three quarterly monitoring events were analyzed for the parameter suite previously detailed in Section 2.3.1. For the fourth quarter event, groundwater and surface water samples were analyzed using the CAP-defined parameter suite described in Section 2.4. The full suite of VOCs were analyzed as part of the January 2011 quarterly event. Analytical results for the fourth quarter 2011 are tabulated in Appendix B. Summary data tables for the three preceding 2011 monitoring quarters, which have been previously reported, are attached 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 single holding time delay, no significant data quality issues were identified for the 2011

analytical data set. During the third quarter event, nitrate and nitrite were analyzed slightly outside their 48 hour holding time due to an express sample shipment delay. 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 all 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, the 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 2011 monitoring event are presented in Table 1 (Appendix B). A potentiometric surface map illustrating groundwater flow across the Site during October 2011 is presented as Figure 4 (Appendix B). Tabulated groundwater data and groundwater contour maps previously reported for the first three quarters of the monitoring year are attached to Appendix C.

During 2011, water table elevations across the Site generally remained stable, ranging between 237.42 feet msl (MW-12I in October) to 265.31 feet msl (MW-5 in July). These data are consistent with the previous year's monitoring results (Parametrix 2010), and continue to indicate that groundwater in the upper aquifer flows to the west and southwest and discharges to the headwaters of creeks downgradient of the landfill.

3.1.2 Groundwater Quality

Chemicals of Concerns

Downgradient well MW-14 was the only location where arsenic concentrations were detected above the 0.005 mg/L site-specific groundwater cleanup level during the 2011 reporting period. The reported concentrations ranged between 0.0205 mg/L (in July) and 0.026 mg/L (in January). Low, but detectable, levels of arsenic (ranging between 0.0004 and 0.0049 mg/L) were consistently reported during all four quarters in the remaining groundwater wells. Time-series diagrams for arsenic in groundwater are provided in the Appendix D.

Similarly, manganese only exceeded its 2.24 mg/L site-specific groundwater cleanup level in MW-14. These reported exceedances ranged between 2.7 mg/L (in October) to 4.3 mg/L (in July). The highest manganese levels were generally observed in those wells (MW-6 and MW-14) situated immediately downgradient of the solid waste landfill.

Vinyl chloride exceeded its 0.025 µg/L site-specific groundwater cleanup level in three wells during the reporting period. These exccedances were detected in MW-6 (ranging from 0.12 µg/L in July to 0.24 µg/L in January), MW-12I (ranging from 0.16 µg/L in April to 0.24 µg/L in October) and MW-14 (ranging from 0.23 µg/L in July to 0.45 µg/L in January). The most elevated vinyl chloride concentrations were generally observed during the first quarter of 2011. A full EPA 8260 analysis conducted during the January event did not report detectable

concentrations of any other VOCs in the groundwater samples. 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 in groundwater well MW-14, which is situated on the downgradient (southwest) edge of the solid waste landfill. As noted during past monitoring years, concentrations of site COCs continue to 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 typically 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 were observed in downgradient wells MW-6 and MW-14. These wells generally maintained the lowest dissolved oxygen (0 to 0.5 mg/L) and redox (112 to 218 mV) levels. The most oxidized groundwater conditions were noted in upgradient well MW-5, and to a lesser extent in downgradient well MW-7 (which is the most cross-gradient well in the monitoring network). Both sulfate and TOC levels remained generally low during 2011, with sulfate concentrations ranging from 5.2 mg/L (MW-7 in April) to 34 mg/L (MW-14 in April) and TOC concentrations ranging from 0.49 mg/L (MW-5 in July) to 4.5 mg/L (MW-12I in April). Orthophosphate testing was initiated at the site during the fourth (October 2011) monitoring quarter as part of the CAP implementation. Orthophosphate was not detected in any of the groundwater (or surface water) samples analyzed during this monitoring event.

Geochemical indicator parameters monitored at the Site 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 arsenic detection (0.00556 mg/L at SW-6 in July), none of the surface water samples analyzed during the 2011 monitoring period reported any of the COCs at levels in excess of their site-specific cleanup levels. The July arsenic detection only slightly exceeded the 0.005 mg/L site-specific arsenic cleanup level. During 2011, arsenic was consistently detected in all the surface water locations at concentrations ranging between 0.0008 mg/L (SW-7 in April) to 0.00556 mg/L (SW-6 in July).

Manganese concentrations during 2011 ranged between 0.00052 mg/L (SW-1 in January) to 0.57 mg/L (SW-4 in July). All of these detections remained well below the 2.24 mg/L site-specific cleanup standard for this parameter. With the exception of two J-qualified vinyl chloride detections (i.e., estimated values below the laboratory reporting limit) of 0.0052 µg/L in SW-4 in July and October, no VOCs were detected in any of the surface water samples analyzed during the reporting year.

As reported for previous monitoring years, surface water stations SW-4 and SW-6, which are situated immediately west (downgradient) of the landfill, continue to report the highest levels of site COCs and related landfill indicator parameters. However, the levels of arsenic and vinyl chloride observed at these locations during 2011 remain substantially reduced from those initially reported at the Site. Similarly, levels of chloride (ranging from 3 mg/L [SW-6 in April] to 22 mg/L [SW-4 in July]), sulfate (ranging from 4.6 mg/L [SW-6 in October] to 28 mg/L [SW-4 in July]), TOC (ranging from 1.6 mg/L [SW-1 in January] to 18 mg/L [SW-6 in January], and ammonia (ND [non-detect] to 0.14 mg/L [SW-1 in October] at these locations have also declined over the same period. In addition, orthophosphate was not detected in any of the surface water monitoring locations.

3.2 STATISTICAL EVALUATION

Consistent with Appendix D of the final Hansville Landfill CAP, groundwater data reported for the 2011 monitoring period were statistically evaluated for selected site COCs. Vinyl chloride and arsenic results that exceeded their respective site-specific cleanup standards during 2011 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. 5.1) software and curve-fitting modules of Microsoft Excel (ver. 2007). Summary statistics, including calculated means, Mann-Kendal /Sens Slope Test trends, and UCL/LCL results are provided in Table D-1 (Appendix D). Time-series charts for arsenic and vinyl chloride, including trend projections where appropriate, are also provided in Appendix D.

3.2.1 Statistical Trend Analysis and Time-Series Plots

Three downgradient groundwater monitoring wells (MW-6, MW-12I and MW-14) reported vinyl chloride concentrations in 2011 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 vinyl chloride in MW-6 and for both arsenic and vinyl chloride in MW-14. A positive result (indicative of a possible increasing trend) was reported for vinyl chloride in MW-12I. Follow-up Sens Slope tests for these same wells confirmed a statistically significant decreasing trend in vinyl chloride levels in MW-6 and MW-14. The Sens Slope analysis did not confirm any statistically significant trends (either increasing or decreasing) for vinyl chloride in MW-12I and arsenic in MW-14.

Vinyl chloride and arsenic data reported since January 2007 are plotted versus time (time series graphs) for all the remaining groundwater wells monitored during 2011 (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 MW-14, were projected through 2014 (a three-year projection) to evaluate the convergence of these COCs towards their respective site-specific cleanup levels. Both an exponential decay curve and a least-squares regression line have been overlain on the time-series charts for these wells (Appendix D).

The MW-6, MW-12I and MW-14 vinyl chloride trendlines and the MW-14 arsenic trendline all show a decreasing slope. In general, the least-squares projections predict a more rapid reduction in vinyl chloride levels than is forecast using the attenuation curve method. Both methods predict similar future reductions in arsenic concentrations in MW-14.

3.2.3 Calculation of Upper and Lower Confidence Limits

Using 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 2011 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 arsenic and vinyl chloride, 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 2011 vinyl chloride results in downgradient wells MW-6, MW-12I and MW-14 (which were 0.19 µg/L, 0.203 µg/L and 0.318 µg/L, respectively) exceeded the 0.025 µg/L site specific cleanup level. Both the calculated UCLs and LCLs for vinyl chloride in these same three groundwater monitoring wells also exceeded this parameter's site specific cleanup level. However, the calculated UCL/LCL values for vinyl chloride in the remaining groundwater monitoring wells (MW-5, MW-7 and MW-13D) remained well below the 0.025 µg/L cleanup level.

The calculated mean, UCL and LCL for arsenic in MW-14 (0.0228 mg/L, 0.0255 mg/L and 0.020 mg/L, respectively) all exceeded the parameter's 0.005 mg/L site specific cleanup level. 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 this site specific cleanup level.

4.0 LANDFILL GAS MONITORING

During 2011, the gas collection system, including the interior wells and trenches and the blower/flare facility, were monitored and adjusted on an approximately monthly basis. Performance parameters include methane, oxygen, carbon dioxide, static pressure and temperature. It should be noted, however, that the landfill gas blower system was inoperable over most of the first quarter of 2011. After several diagnostics, repairs to the blower were completed in April 2011. The landfill gas collection system operated normally throughout the remainder of the reporting year.

Landfill gas probes were also monitored on approximately monthly 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 2011 (October through December) are presented in Table 4 (Appendix B). Landfill gas monitoring data tables that were previously reported during the preceding 2011 quarters are also attached in Appendix C. As previously mentioned, the landfill blower unit required repairs during the first quarter of the reporting year and remained inoperable throughout this period. The system resumed normal operations in April 2011.

During the fourth quarter of 2011, methane concentrations measured within the active landfill extraction system ranged between 0.0 and 30.2 methane (by percent volume). A similar range of methane concentrations were reported in the active extraction system during the second and third 2011 quarters.

The regulatory limit for landfill gas probes stated in WAC 173-304-460 is 5 percent methane by volume (the lower explosive limit [LEL]) at the site boundary. During 2011, detectable methane concentrations were not reported above the equipment detection limits in any of the perimeter gas probes. Oxygen concentrations in the perimeter probes remained close to ambient, ranging between 20.3 and 21.7 percent volume. Carbon dioxide levels during the reporting period typically ranged between 0.1 and 1.5 percent volume.

The 2011 landfill gas monitoring results indicate that the site remains in compliance with the subsurface methane threshold limits at the property boundary. These data also indicate that landfill gas remains present in the soils immediately surrounding and under the solid waste disposal areas. Overall, the landfill gas 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

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

Parametrix. *Final Feasibility Study Report, Remedial Investigation/Feasibility Study Report, Hansville Landfill.* June 2009.

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

Parametrix. *Transmittal of First Quarter 2011 Environmental Monitoring Data, Hansville Landfill*. April 2011.

SCS Engineers. *Transmittal of Second Quarter 2011 Environmental Monitoring Data, Hansville Landfill, Kitsap County, WA.* July 2011.

SCS Engineers. *Transmittal of Third Quarter 2011 Environmental Monitoring Data, Hansville Landfill, Kitsap County, WA*. October 2011.

SCS Engineers. *Compliance Monitoring Plan, with Sampling & Analysis Plan (SAP) and Quality Assurance Plan (QAP) Remedial Action at the Hansville Landfill, Kitsap County, WA.* September 2011

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

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

Appendix A

Site Figures

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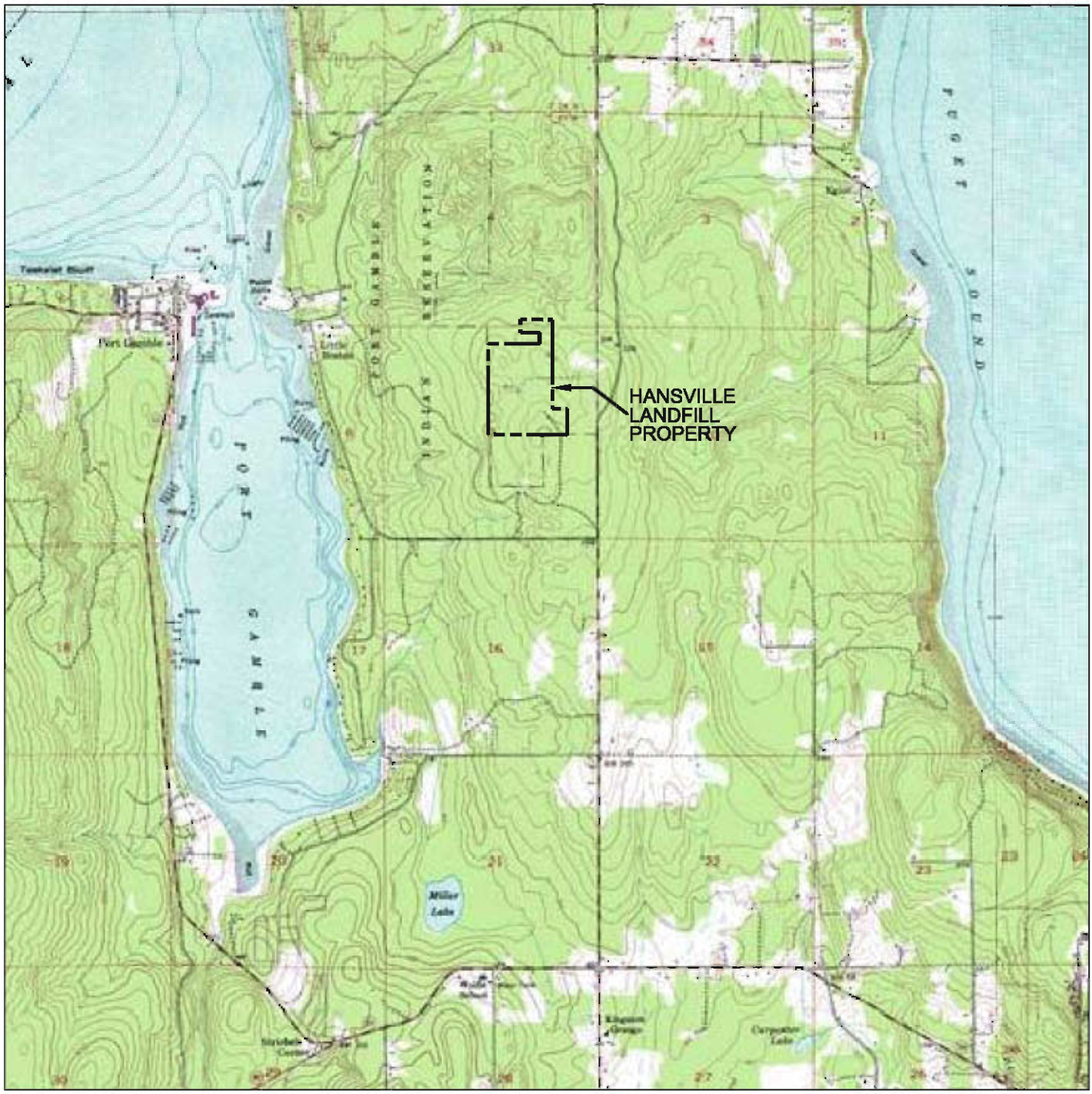

SOURCE: USGS

SCS ENGINEERS
Environmental Consultants and Contractors
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Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

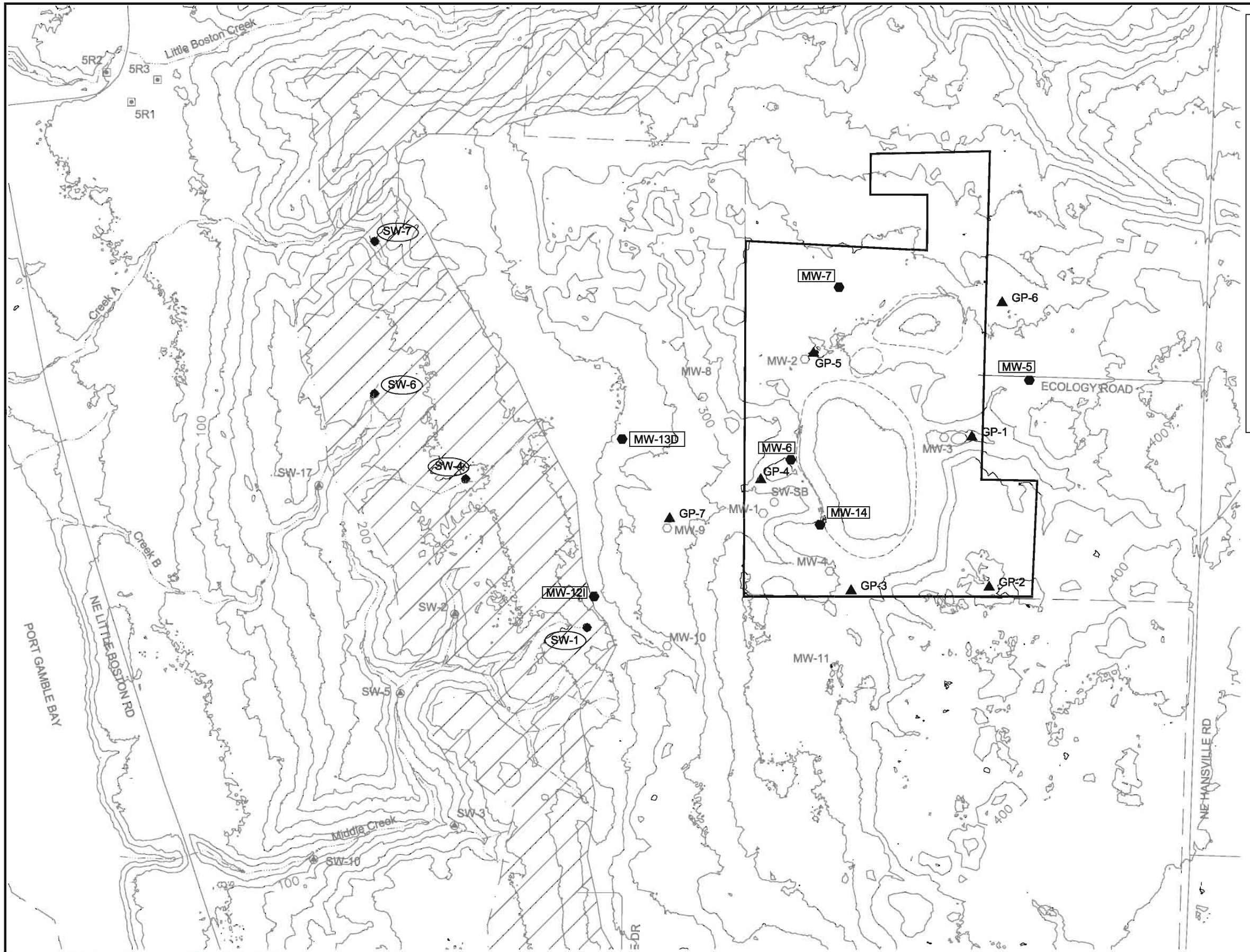
PROJECT NO. 04211017.00	DES BY L.L.
SCALE NA	CHK BY D.V.
CAD FILE FIGURE 1	APP BY G.H.

LANDFILL PROPERTY LOCATION MAP

HANSVILLE LANDFILL SITE
KITSAP COUNTY, WASHINGTON

DATE SEP 2011

FIGURE 1



LEGEND:

- MW-7 — COMPLIANCE MONITORING GROUNDWATER WELL LOCATION
- SW-6 — COMPLIANCE MONITORING SURFACE WATER LOCATION
- GP-1 — COMPLIANCE MONITORING LANDFILL GAS PROBE LOCATION
- 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 PROPERTY BOUNDARY
- WASTE UNIT BOUNDARY
- PORT GAMBLE S'KLALLAM TRIBE RESERVATION BOUNDARY

0 600
SCALE IN FEET

VERTICAL DATUM: NAVD 83

BASE MAP SOURCE: PARAMETRIX, 2011

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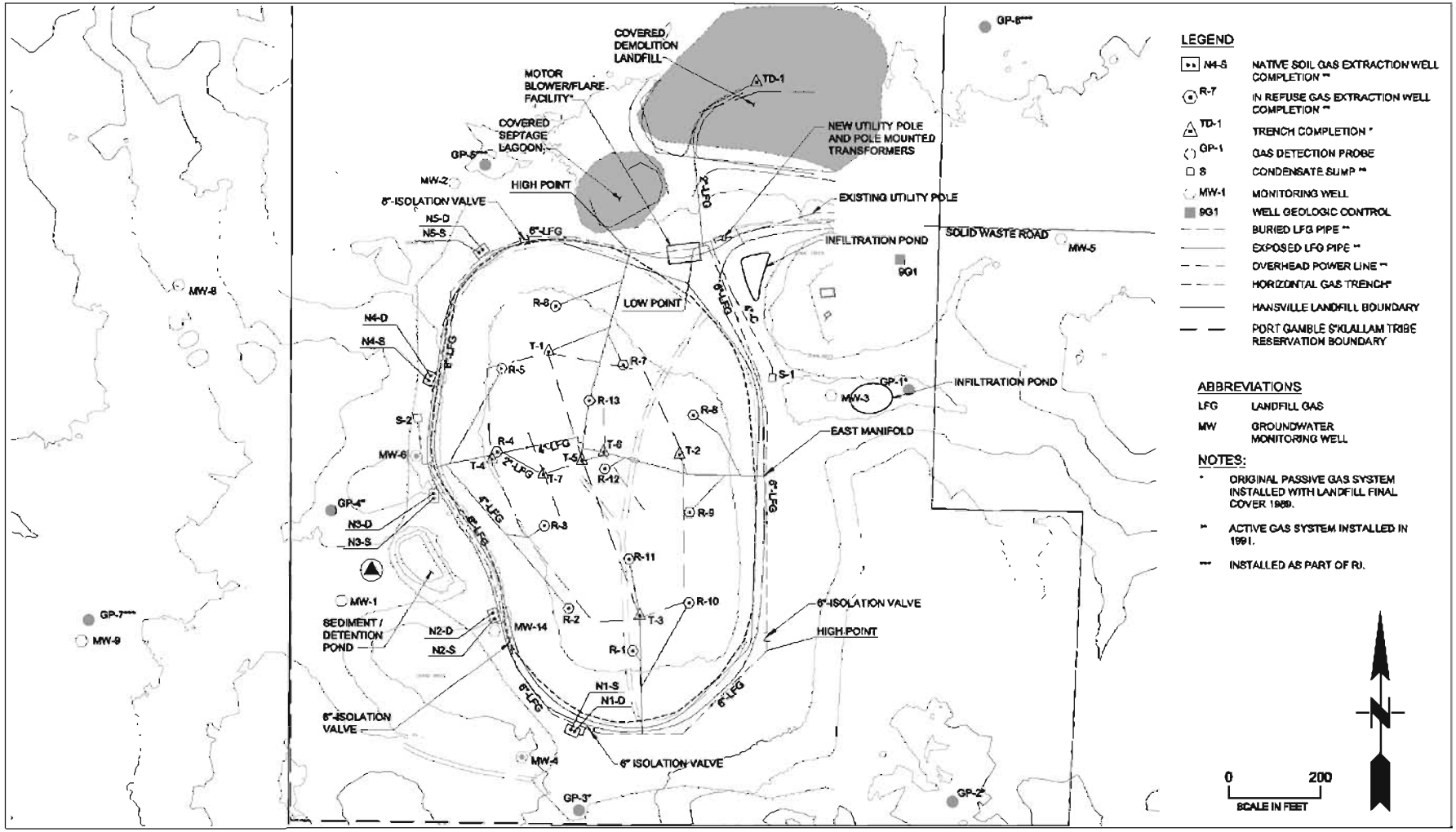
PROJECT NO. 042110017.00	DES BY L.L.	COMPLIANCE MONITORING LOCATIONS HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE SEPT 2011
SCALE AS SHOWN	CHK BY D.V.		FIGURE 2
CAD FILE FIGURE 2	APP BY G.H.		



BASE MAP SOURCE: PARAMETRIX, 2004

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PROJECT NO.	DES BY
04211017.00	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 JANUARY 2011

FIGURE 3

Appendix B

Fourth Quarter (October) 2011 Summary Data Tables For Groundwater, Surface Water and Landfill Gas & October 2011 Groundwater Contour Map

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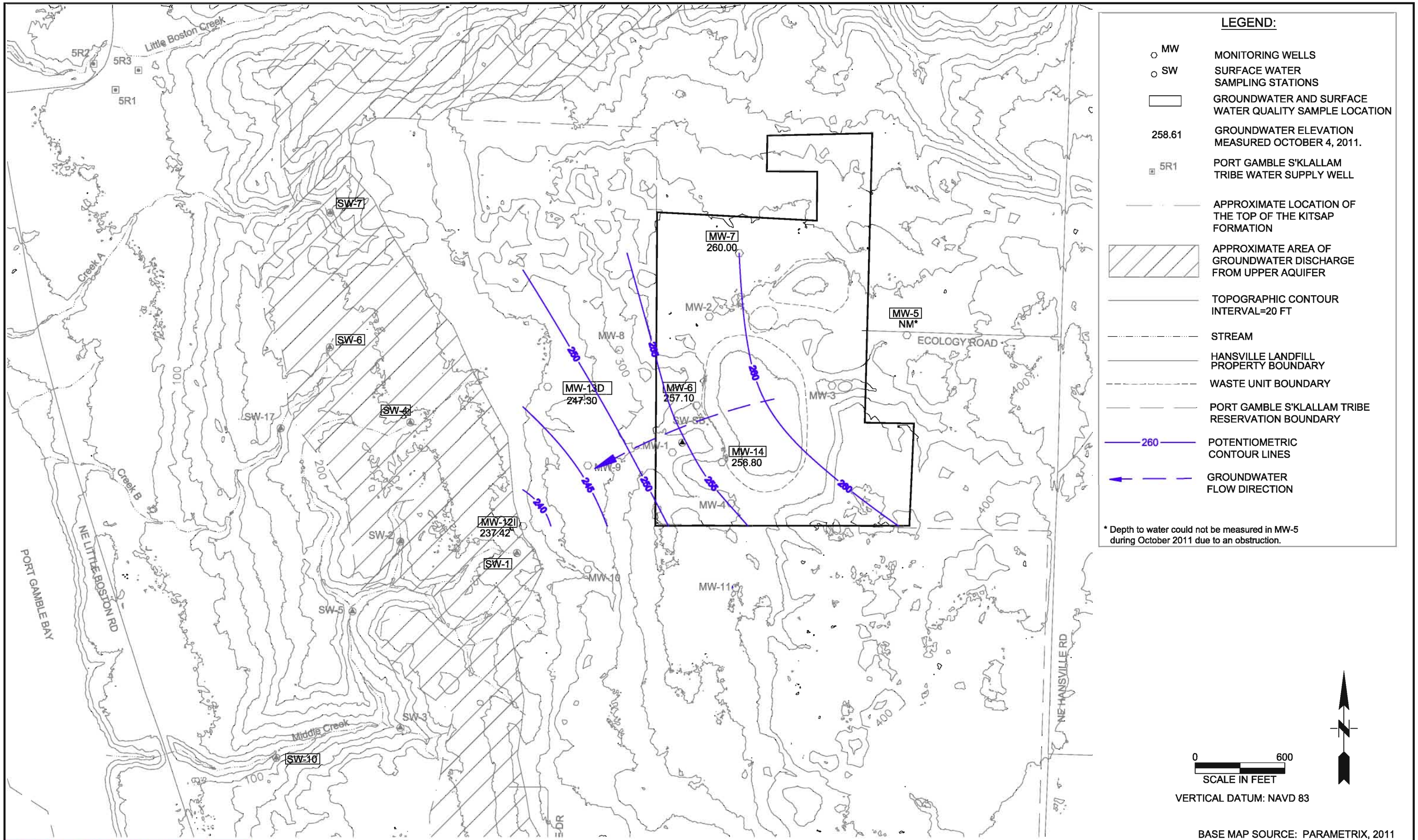
Table 1. Water Level Elevations, Groundwater Monitoring Wells, October 4, 2011
Hansville Landfill, Kitsap County, Washington

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	Obstructed	NM
MW-6	332.0	332.7	260	245	75.60	257.10
MW-7	344.3	346.0	259	244	86.00	260.00
MW-12I	245.6	248.1	217	207	10.68	237.42
MW-13D	258.1	260.4	205	195	13.10	247.30
MW-14	338.6	341.1	262	247	84.30	256.80

PVC: PVC wellhead casing measuring point elevation.
NM: Measurement could not be obtained due to an obstruction.
ft-msl: Elevation in feet above mean sea level.



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PROJECT NO. 042110017.00	DES BY S.A.	UPPER AQUIFER GROUNDWATER CONTOURS OCTOBER 4, 2011 HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE DECEMBER 2011
SCALE AS SHOWN	CHK BY D.V.		FIGURE 4
CAD FILE FIGURE 4	APP BY G.H.		

Table 2. Hansville Landfill Groundwater Data, Fourth Quarter 2011 Monitoring Event - October 4, 2011

Parameter	Site Cleanup Level (SCL) [1]	MW-05	MW-06	MW-06 DUP	MW-07	MW-12I	MW-13D	MW-14	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		5.05	0.20	--	0.94	0.05	0.00	0.06	--
pH (units)		7.21	6.86	--	6.82	7.15	7.42	6.85	--
Specific Conductivity (uS)		120	373	--	255	176	230	265	--
Temperature (degrees C)		13.7	15.8	--	12.29	10.93	11.34	14.65	--
Redox (Mv)		239	218	--	318	226	133	112	--
Conventional Parmeters (mg/L, unless otherwise shown)									
Alkalinity		58 B	200 B	180 B	150 B	100	110 B	140 B	--
Ammonia (As N)		0.037	0.039	0.030	0.030 U	0.029 J	0.023 J	0.048	--
Bicarbonate		58 B	200 B	180 B	150 B	100	110 B	140 B	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		4.0	18	17	2.7	4.4	8.4	6.9	--
Nitrate (As N)		0.56	1.2	1.1	1.2	0.5 U	0.5 U	0.5 U	--
Nitrite (As N)		0.5 U	0.070 J	0.064 J	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		9.5	26	25	6.4	7.4	19	18	--
Total Organic Carbon (TOC)		0.51 J	1.1	1.0	1.5	2.6	0.59 J	1.2	--
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	0.0020	0.0032	0.0035	0.00107	0.0022	0.0032	0.0226	--
Manganese	2.24	0.0011	0.410	0.410	0.001 U	0.063	0.057	2.7	--
Volatile Organics Compounds (ug/L)									
Vinyl chloride	0.025	0.02 U	0.19 B	0.02 U	0.02 U	0.24 B	0.02 U	0.27 B	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 3. Hansville Landfill Surface Water Data, Fourth Quarter 2011 Monitoring Event - October 4, 2011

Parameter	Site Cleanup Level (SCL) [1]	SW-1	SW-4	SW-6	SW-7	Trip Blank
Field Parameters						
Dissolved Oxygen (mg/L)		2.82	3.04	3.23	2.51	--
pH (units)		7.76	7.04	7.13	6.35	--
Specific Conductivity (uS)		253	447	161	168	--
Temperature (degrees C)		10.93	11.25	11.81	11.57	--
Redox (Mv)		24.4	-27	-10.9	168	--
Conventional Parmeters (mg/L, unless otherwise shown)						
Alkalinity		99 B	200 B	79 B	64 B	--
Ammonia (As N)		0.14	0.064	0.045	0.03 U	--
Bicarbonate		99 B	200 B	79 B	64 B	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride		5.3	20	5.3	4.6	--
Nitrate (As N)		2.3	1.1	0.50 U	0.67	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate		13	27	4.6	6.2	--
Total Organic Carbon (TOC)		1.8	5.2	10	9.0	--
Orthophoshate (As P)		0.5 U	0.5 U	0.5 U	0.5 U	--
Dissolved Metals (mg/L)						
Arsenic	0.005	0.0016	0.0019	0.0044	0.0018	--
Manganese	2.24	0.0006 J	0.072	0.340	0.011	--
Volatile Organics Compounds (ug/L)						
Vinyl chloride	0.025	0.02 U	0.0052 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.

Table 4: Hansville LFG - Probe Data - 10/01/2011 through 10/31/2011

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	10/21/2011 15:55	0	0.1	20.4	79.5			-0.05	
Probe 2 Deep	10/21/2011 15:48	0	0.1	20.3	79.6			-0.06	
Probe 2 Middle	10/21/2011 15:46	0	0.1	20.3	79.6			-0.06	
Probe 2 Shallow	10/21/2011 15:44	0	0.1	20.3	79.6			-0.06	
Probe 3	10/21/2011 15:29	0	0.1	20.4	79.5			-0.08	
Probe 4	10/21/2011 15:32	0	0.1	20.4	79.5			-0.07	
Probe 5	10/21/2011 15:08	0.5	0.5	20.1	78.9			-0.07	
Probe 6	10/21/2011 14:51	0	0.2	20.6	79.2			-0.08	
Probe 7	10/21/2011 15:38	0	0.2	20.3	79.5			-0.07	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
Khalfani	10/21/11	0	29.72	Cloudy	N/A	N/A			

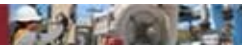

Table 4 (continued): Hansville LF - Well Data - 10/01/2011 through 10/31/2011

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	10/21/2011 14:22	0	0.3	20.4	79.3	-0.2	-0.2	71	71	0	0			
Extraction Well 002	10/21/2011 14:24	0	0.2	20.9	78.9	-0.1	-0.1	71	71	0	0			
Extraction Well 003	10/21/2011 14:14	20.3	9.7	1.3	68.7	-0.7	-0.7	76	76	4	4			
Extraction Well 004	10/21/2011 14:10	0.1	0.6	19	80.3	-0.1	-0.2	71	71	0	0			
Extraction Well 005	10/21/2011 13:49	0	0.1	20.9	79	-0.1	-0.1	76	76	0	0			
Extraction Well 006	10/21/2011 13:47	0	0.1	20.8	79.1	-0.2	-0.2	74	74	0	0			
Extraction Well 007	10/21/2011 13:44	0	0.2	20.9	78.9	-0.2	-0.2	73	73	0	0			
Extraction Well 008	10/21/2011 13:40	19	14.8	1.7	64.5	-0.5	-0.5	76	76	3	3			
Extraction Well 009	10/21/2011 13:59	0.1	0.6	18.7	80.6	-0.2	-0.2	72	72	0	0			
Extraction Well 010	10/21/2011 14:18	15.9	8.6	0.6	74.9	-0.2	-0.3	71	71	0	0			
Extraction Well 011	10/21/2011 14:16	19	5.2	0.6	75.2	-0.4	-0.4	75	75	2	2			
Extraction Well 012	10/21/2011 14:02	24.9	6.4	0.9	67.8	-0.7	-0.9	77	77	5	6			
Extraction Well 013	10/21/2011 13:55	0	0.5	20.3	79.2	-0.1	-0.1	72	72	0	0			
Native Soil Extraction We	10/21/2011 14:29	0	3.2	15.8	81	-0.1	-0.1	72	71	0	0			
Native Soil Extraction We	10/21/2011 14:27	0	1	19.4	79.6	0	0	71	71	0	0			
Native Soil Extraction We	10/21/2011 14:33	0	2.5	17.5	80	-0.1	-0.1	70	70	0	0			
Native Soil Extraction We	10/21/2011 14:32	0	3.6	14.9	81.5	-0.1	0	72	72	0	0			
Native Soil Extraction We	10/21/2011 14:37	0	0.2	20.6	79.2	-0.1	-0.1	71	71	0	0			
Native Soil Extraction We	10/21/2011 14:36	0	0.2	20.6	79.2	-0.1	-0.1	70	70	0	0			
Native Soil Extraction We	10/21/2011 14:40	0	1	19.6	79.4	-0.2	-0.1	71	71	0	0			
Native Soil Extraction We	10/21/2011 14:39	0	0.1	20.8	79.1	-0.1	-0.1	71	71	0	0			
Native Soil Extraction We	10/21/2011 14:44	0	0.1	20.7	79.2	-0.1	-0.1	70	70	0	0			
Native Soil Extraction We	10/21/2011 14:42	0	0.1	20.6	79.3	-0.2	-0.2	70	70	0	0			
Trench Well TD-1	10/21/2011 14:48	12.5	20.6	0.8	66.1	-0.1	-0.1	73	73	1	1			
Trench Well TR-1	10/21/2011 13:52	15.4	14.9	1.2	68.5	-0.3	-0.3	73	73	0	0			
Trench Well TR-2	10/21/2011 13:57	18.7	15	0.5	65.8	-0.2	-0.2	76	76	3	3			
Trench Well TR-3	10/21/2011 14:20	26	14.1	0.7	59.2	-0.3	-0.2	76	76	4	4			
Trench Well TR-4	10/21/2011 14:12	0	0.2	20.8	79	-0.3	-0.3	71	71	0	0			
Trench Well TR-5	10/21/2011 14:06	2.4	1.8	18.4	77.4	-0.2	-0.2	72	72	0	0			
Trench Well TR-6	10/21/2011 14:04	28.4	15.7	0.6	55.3	-0.2	-0.2	76	76	3	3			
Trench Well TR-7	10/21/2011 14:08	26.8	15.1	0.7	57.4	-0.3	-0.3	75	75	3	3			
Well with minimum temperature during reporting period														
Native Soil Extraction We	10/21/2011 14:33	Init = 70 Adj = 70												
Native Soil Extraction We	10/21/2011 14:36	Init = 70 Adj = 70												
Native Soil Extraction We	10/21/2011 14:42	Init = 70 Adj = 70												
Native Soil Extraction We	10/21/2011 14:44	Init = 70 Adj = 70												
Well with maximum temperature during reporting period														
Extraction Well 012	10/21/2011 14:02	Init = 77 Adj = 77												
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
Khalfani	10/21/11	0	29.72	Cloudy	N/A	N/A								

Table 4 (continued): Hansville LF - Probe Data - 11/01/2011 through 11/30/2011

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	11/28/2011 14:21	0.1	1.5	20.8	77.6			0	
Probe 2 Deep	11/28/2011 14:38	0.1	0.1	21.7	78.1			0	
Probe 2 Middle	11/28/2011 14:36	0.1	0.2	21.6	78.1			0.01	
Probe 2 Shallow	11/28/2011 14:31	0.1	1.2	21.1	77.6			0	
Probe 2 Shallow	11/28/2011 14:34	0.1	0.4	21.5	78			0.01	
Probe 3	11/28/2011 12:57	0	1.5	20.7	77.8			0	
Probe 4	11/28/2011 13:04	0	1.3	20.3	78.4			-9.03	
Probe 5	11/28/2011 14:44	0.1	0.2	21.6	78.1			0	
Probe 6	11/28/2011 12:24	0.1	1.3	20.6	78			0	
Most recent value for remaining GEM IDs at site not monitored during reporting period									
Probe 7	10/21/2011 15:38	0	0.2	20.3	79.5			-0.07	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
Tim Logan	11/28/11	40	29.94	Clear	Calm	W			

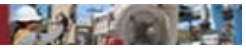

Table 4 (continued): Hansville LF - Well Data - 11/01/2011 through 11/30/2011

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	11/28/2011 13:13	0	0.6	21.7	77.7	0	0	50	50	0	0			
Extraction Well 002	11/28/2011 13:17	0.3	4	19	76.7	0	0	47	47	0	0			
Extraction Well 003	11/28/2011 13:20	20.7	9.3	0	70	-0.6	-0.6	46	46	0	0			
Extraction Well 004	11/28/2011 13:24	0.2	1.7	20.7	77.4	0	-0.1	46	46	0	0			
Extraction Well 006	11/28/2011 13:35	0.1	3.3	19.5	77.1	-0.1	-0.1	48	47	0	0			
Extraction Well 007	11/28/2011 13:37	0.1	1.1	21.2	77.6	-0.1	-0.1	47	47	0	0			
Extraction Well 008	11/28/2011 14:14	19	16.2	0	64.8	-0.2	-0.2	43	44	2	2			
Extraction Well 009	11/28/2011 14:04	0.1	0.7	21.3	77.9	0	0	45	45	0	0			
Extraction Well 010	11/28/2011 14:01	13.8	8.5	0	77.7	-0.2	-0.2	46	46	0	0			
Extraction Well 011	11/28/2011 13:58	19	4.5	0	76.5	-0.4	-0.4	46	46	0	0			
Extraction Well 012	11/28/2011 13:53	24.2	7.1	0	68.7	-0.8	-0.8	47	46	0	0			
Extraction Well 013	11/28/2011 13:48	0.1	0.5	21.4	78	-0.1	-0.1	46	46	0	0			
Native Soil Extraction We	11/28/2011 12:54	0	5.1	12.7	82.2	0	0	47	47	0	0			
Native Soil Extraction We	11/28/2011 12:52	0	2.9	17.2	79.9	0	0	48	48	0	0			
Native Soil Extraction We	11/28/2011 12:46	0	3.2	17.1	79.7	0	0	47	46	0	0			
Native Soil Extraction We	11/28/2011 12:44	0	4.1	13.8	82.1	0	0	48	48	0	0			
Native Soil Extraction We	11/28/2011 12:42	0	4.3	15.3	80.4	0	0	47	46	0	0			
Native Soil Extraction We	11/28/2011 12:39	0	5.2	12.8	82	0	0	49	48	0	0			
Native Soil Extraction We	11/28/2011 12:37	0	2.7	17.5	79.8	0	0	49	49	0	0			
Native Soil Extraction We	11/28/2011 12:35	0	1.4	20.7	77.9	0	0	50	50	0	0			
Native Soil Extraction We	11/28/2011 12:32	0	2.8	16.5	80.7	0	0	50	49	0	0			
Native Soil Extraction We	11/28/2011 12:30	0.1	1.1	18.9	79.9	0	0	52	51	0	0			
Trench Well TD-1	11/28/2011 12:20	11.2	20.3	0	68.5	0	0	52	51	0	0			
Trench Well TR-1	11/28/2011 13:33	7.6	13.7	0.1	78.6	-0.2	-0.2	50	50	0	0			
Trench Well TR-2	11/28/2011 14:08	13.1	15.1	0	71.8	-0.2	-0.2	44	44	0	0			
Trench Well TR-3	11/28/2011 13:15	21	13.3	0	65.7	-0.2	-0.2	49	49	0	0			
Trench Well TR-4	11/28/2011 13:27	0.1	0.5	21.4	78	-0.2	-0.2	46	46	0	0			
Trench Well TR-5	11/28/2011 13:30	0.1	0.2	21.5	78.2	0	0	48	48	0	0			
Trench Well TR-5	11/28/2011 13:56	0.1	0.6	21.1	78.2	-0.2	-0.2	46	46	0	0			
Trench Well TR-6	11/28/2011 13:51	23.7	14.8	0	61.5	-0.2	-0.2	46	46	0	0			
Trench Well TR-7	11/28/2011 13:22	21.6	14.4	0	64	-0.2	-0.2	45	45	0	0			
Well with minimum temperature during reporting period														
Extraction Well 008	11/28/2011 14:14	Init = 43 Adj = 44												
Well with maximum temperature during reporting period														
Trench Well TD-1	11/28/2011 12:20	Init = 52 Adj = 51												
Native Soil Extraction We	11/28/2011 12:30	Init = 52 Adj = 51												
Most recent value for remaining GEM IDs at site not monitored during reporting period														
Extraction Well 005	10/21/2011 13:49	0	0.1	20.9	79	-0.1	-0.1	76	76	0	0			
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
Tim Logan	11/28/11	40	29.95	Clear	Calm	W								

Table 4 (continued): Hansville LF - Well Data - 12/01/2011 through 12/31/2011

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Temp (deg F)	Adj Temp (deg F)	Init Flow (scfm)	Adj Flow (scfm)	System Press (H2O inch)	Rel Press (H2O inch)	Comments
Extraction Well 001	12/21/2011 18:08	0	0.2	20.6	79.2	-0.1	-0.1	41	41	0	0			
Extraction Well 002	12/21/2011 17:12	0	0.1	20.5	79.4	-0.1	-0.1	41	41	0	0			
Extraction Well 003	12/21/2011 17:07	21.1	9.4	0.3	69.2	-0.5	-0.5	42	42	4	4			
Extraction Well 004	12/21/2011 16:59	0	0.2	20.4	79.4	-0.1	-0.1	43	43	0	0			
Extraction Well 005	12/21/2011 16:22	0	0.5	20.4	79.1	-0.1	-0.1	41	41	0	0			
Extraction Well 006	12/21/2011 16:14	0	0	20.6	79.4	-0.1	-0.1	42	42	0	0			
Extraction Well 007	12/21/2011 16:32	0	0.1	20.2	79.7	-0.1	-0.1	43	43	0	0			
Extraction Well 008	12/21/2011 16:35	20.6	15.5	0.3	63.6	-0.2	-0.3	43	43	3	3			
Extraction Well 009	12/21/2011 16:42	0	0.3	20.5	0.2	-0.1	-0.1	42	42	0	0			Bal Gas value not correctly calculated by GEM.
Extraction Well 010	12/21/2011 17:22	16.3	8.5	0.3	74.9	-0.2	-0.2	41	41	0	0			
Extraction Well 011	12/21/2011 17:18	21	4.7	0.1	74.2	-0.3	-0.2	41	41	2	2			
Extraction Well 012	12/21/2011 16:45	27.3	6.2	0.4	66.1	-0.6	-0.7	43	43	6	5			
Extraction Well 013	12/21/2011 16:28	0	0	20.6	79.4	-0.1	-0.1	41	41	1	0			
Native Soil Extraction We	12/21/2011 18:13	0	0.2	20.1	79.7	0	0	40	40	0	0			
Native Soil Extraction We	12/21/2011 18:17	0.1	1.1	18.4	80.4	0	0	40	40	0	0			
Native Soil Extraction We	12/21/2011 18:20	0	0.2	20.4	79.4	0	0	40	40	0	0			
Native Soil Extraction We	12/21/2011 18:22	0	0.1	20.1	79.8	0	0	41	41	0	0			
Native Soil Extraction We	12/21/2011 18:27	0	0.2	20.6	79.2	0	0	41	41	0	0			
Native Soil Extraction We	12/21/2011 18:25	0.1	0.3	20.5	79.1	0	0	40	40	0	0			
Native Soil Extraction We	12/21/2011 18:34	0	0	20.7	79.3	0	0	41	41	0	0			
Native Soil Extraction We	12/21/2011 18:31	0	0.1	20.5	79.4	0	0	42	42	0	0			
Native Soil Extraction We	12/21/2011 18:42	0	0	20.2	79.8	0	0	40	40	0	0			
Native Soil Extraction We	12/21/2011 18:38	0	0	20.3	79.7	-0.1	-0.1	42	42	0	0			
Trench Well TD-1	12/21/2011 18:48	11.6	20.7	0.3	67.4	0	0	42	42	1	1			
Trench Well TR-1	12/21/2011 16:17	18.3	15.4	0.2	66.1	-0.1	-0.1	42	42	0	0			
Trench Well TR-2	12/21/2011 16:39	19.2	14.4	0.2	66.2	-0.2	-0.2	42	42	3	3			
Trench Well TR-3	12/21/2011 18:02	27.1	14.3	0.1	58.5	-0.1	-0.1	42	42	4	4			
Trench Well TR-4	12/21/2011 17:02	0	0.1	20.2	79.7	-0.1	-0.1	42	42	0	0			
Trench Well TR-5	12/21/2011 16:52	0	0	20.6	79.4	-0.1	-0.1	42	42	0	0			
Trench Well TR-6	12/21/2011 16:48	30.2	15.8	0.3	53.7	-0.2	-0.2	42	42	3	3			
Trench Well TR-7	12/21/2011 16:56	28.2	15.3	0.3	56.2	-0.1	-0.1	43	43	3	3			
Well with minimum temperature during reporting period														
Native Soil Extraction We	12/21/2011 18:13	Init = 40 Adj = 40												
Native Soil Extraction We	12/21/2011 18:17	Init = 40 Adj = 40												
Native Soil Extraction We	12/21/2011 18:20	Init = 40 Adj = 40												
Native Soil Extraction We	12/21/2011 18:25	Init = 40 Adj = 40												
Native Soil Extraction We	12/21/2011 18:42	Init = 40 Adj = 40												
Well with maximum temperature during reporting period														
Extraction Well 007	12/21/2011 16:32	Init = 43 Adj = 43												
Extraction Well 008	12/21/2011 16:35	Init = 43 Adj = 43												
Extraction Well 012	12/21/2011 16:45	Init = 43 Adj = 43												
Trench Well TR-7	12/21/2011 16:56	Init = 43 Adj = 43												
Extraction Well 004	12/21/2011 16:59	Init = 43 Adj = 43												
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
Khali	12/21/11	41	30.08	Cloudy	N/A	N/A								

Appendix C

Summary of Previous Quarter Monitoring Results (Q3, Q2 and Q1 2011)

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Q3 - JULY 2011 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Groundwater Monitoring Wells, July 25, 2011
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	101.59	265.31
MW-6	332.0	332.7	260	245	75.80	256.90
MW-7	344.3	346.0	259	244	86.31	259.69
MW-12I	245.6	248.1	217	207	10.56	237.54
MW-13D	258.1	260.4	205	195	11.91	248.49
MW-14	338.6	341.1	262	247	83.25	257.85

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 2011 Monitoring Event - July 25, 2011

Parameter	Preliminary Cleanup Level (PCL)	MW-05	MW-06	MW-06 DUP	MW-07	MW-12I	MW-13D	MW-14	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		8.33	0.72	--	1.98	0.38	0.18	0.29	--
pH (units)		7.4	7.15	--	7.07	7.28	7.51	6.98	--
Specific Conductivity (uS)		141	459	--	305	178	273	354	--
Temperature (degrees C)		13.3	17.2	--	13.42	12.99	11.65	15.1	--
Conventional Parmeters (mg/L, unless otherwise shown)									
Alkalinity		60	200	190	160	88	120	150	--
Ammonia (As N)		0.059	0.11	0.079	0.057	0.10	0.047	0.12	--
Bicarbonate		60	200	190	160	88	120	150	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride	250 [1]	3.1	19	18	1.7	4.5	9.7	12	--
Chemical Oxygen Demand (COD)		10 U	10 U	10 U	10 U	7.9 J	5.6 J	10 U	--
Hydroxide (Alkalinity)		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Nitrate (As N)	10,000	0.53 H	0.7 H	0.39 H	1.2 H	0.5 U	0.065 H	0.5 U	--
Nitrite (As N)		0.5 U	0.25 J	0.25 J	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate	250 [1]	9.5	28	28	6.5	6.4	19	21	--
Total Organic Carbon (TOC)		0.49 J	1.2	1.3	1.5	2.7	0.64 J	1.3	--
Total Coliform (MPN/100 ml)		1.0	51.2	54.5	1.0	1.0 U	2.6	54.5	--
Dissolved Metals (mg/L)									
Arsenic	0.000005	0.0018	0.0027	0.0031	0.00106	0.0018	0.003	0.0205	--
Calcium		7.9	27	26	18	9.6	13	23	--
Copper	0.00274	0.002 U	0.002 U	0.002 U	0.0012 J	0.0014 J	0.0011 J	0.002 U	--
Iron	0.3 [1]	0.06 U	0.074	0.096	0.34	0.06 U	0.37	0.84	--
Lead	0.000541	0.00040 U	0.00040 U	0.00040 U	0.00021 J	0.00040 U	0.00040 U	0.00040 U	--
Magnesium		9.4	35	34	24	13	17	22	--
Manganese	2.24 / 0.05 [1]	0.0047 J	0.42	0.51	0.0064	0.033	0.073	3.0	--
Potassium		1.9	3.4	3.3	2.7	2.1	3.0	2.2	--
Sodium		5.7	14 B	14 B	7.5 B	7.4 B	22	13 B	--
Volatile Organics Compounds (ug/L)									
Vinyl chloride	0.025	0.02 U	0.12	0.15	0.02 U	0.20	0.0082 J	0.23	0.02 U

-- Not Tested.

[1] Value represents a secondary MCL.

Shaded results exceed PCL or MCL.

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.

H Holding time was exceeded (due to an express shipment delay after sample drop off).

B Analyte was detected in the blank.

Table A-3. Hansville Landfill Surface Water Data, Third Quarter 2011 Monitoring Event - July 25, 2011

Parameter	Preliminary Cleanup Level (PCL)	SW-1	SW-4	SW-6	SW-6 DUP	SW-7	SW-10	Trip Blank
Field Parameters								
Dissolved Oxygen (mg/L)		9.45	9.91	9.0	--	8.9	9.1	--
pH (units)		5.75	6.94	7.59	--	7.33	7.46	--
Specific Conductivity (uS)		240	485	20	--	145	100	--
Temperature (degrees C)		11.9	11.64	13.02	--	12.3	14.05	--
Redox (Mv)		375	314	299	--	296	301	--
Conventional Parmeters (mg/L, unless otherwise shown)								
Alkalinity		97	200	79	71	60	110	--
Ammonia (As N)		0.059	0.065	0.091	0.083	0.066	0.082	--
Bicarbonate		97	200	79	71	60	110	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride	250 [1]	5.7	22	5.6	3.5	4.8	8.9	--
Chemical Oxygen Demand (COD)		5.6 J	11	37	34	29	8.6 J	--
Hardness		110	210	72	69	61	110	--
Hydroxide (Alkalinity)		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Nitrate (As N)	10,000	2.2 H	1.2 H	0.10 J	0.12 J	0.71 H	1.3 H	--
Nitrite (As N)		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Sulfate	250 [1]	13	28	4.8	4.3	6.6	12	--
Total Organic Carbon (TOC)		2.1	4.5	14	14	9.6	3.5	--
Total Suspended Solids (TSS)		6.0	13	18	18	54	17	--
Turbidity (NTU)		0.1 H	0.76 H	3.1 H	1.7 H	2.6 H	1.2 H	--
Fecal Coliform (MPN/100 ml)		2.0	2.1	10..8	5.7	2.9	4.4	--
Dissolved Metals (mg/L)								
Arsenic	0.000005	0.0015	0.0017	0.00556	0.00482	0.00162	0.00206	--
Calcium		15	28	11	11	12	16	--
Copper	0.00274	0.002 U	0.002 U	0.00068 J	0.002 U	0.00095 J	0.00075 J	--
Iron	0.3 [1]	0.04 J	0.079	1.5	1.1	0.45	0.26	--
Lead	0.000541	0.00040 U	0.0036	0.00087	0.00056	0.00043	0.00040 U	--
Magnesium		17	35	11	10	7.8	18	--
Manganese	2.24 / 0.05 [1]	0.009	0.57	0.55	0.42	0.072	0.041	--
Potassium		2.2	3.2	1.2	1.2	1.4	2.1	--
Sodium		6.5	22	6.3	6.1	6.1	8.6	--
Volatile Organics Compounds (ug/L)								
Vinyl chloride	0.025	0.02 U	0.0052 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

-- Not Tested.

[1] Value represents a secondary MCL.

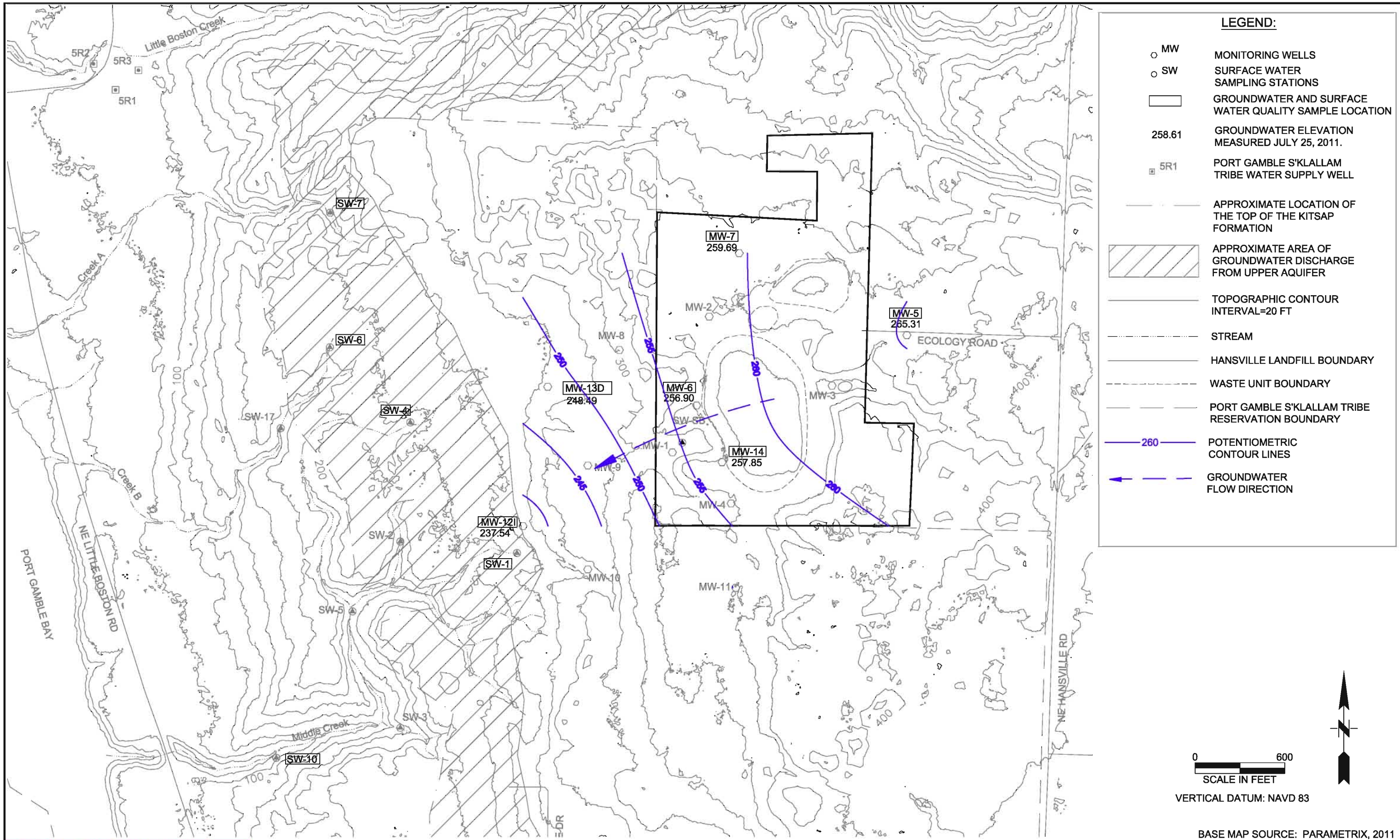
Shaded results exceed PCL or MCL.

DUP The SW-6 DUP identifer is blind duplicate SW-20.

J Result is an estimate below the reporting limit.

U Compound not dectected at reporting limit.

H Holding time was exceeded (due to an express shipment delay after sample drop off).



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PROJECT NO. 042110017.00	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS JULY 25, 2011 HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE JULY 2011
SCALE AS SHOWN	CHK BY D.V.		FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

Hansville LF - Probe Data - 08/21/2011 through 08/31/2011

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	8/31/2011 13:06	0	0.1	20.6	79.3			-0.05	
Probe 2 Deep	8/31/2011 12:29	0	0.1	20.5	79.4			-0.04	
Probe 2 Middle	8/31/2011 12:28	0	0.1	20.5	79.4			-0.12	
Probe 2 Shallow	8/31/2011 12:27	0	0.1	20.5	79.4			-0.04	
Probe 3	8/31/2011 12:34	0	0.6	20	79.4			-0.03	
Probe 4	8/31/2011 12:45	0	1.5	19.3	79.2			-0.02	
Probe 5	8/31/2011 13:00	0	0.1	20.6	79.3			-0.05	
Probe 6	8/31/2011 13:13	0	0.1	20.8	79.1			-0.06	
Probe 7	8/31/2011 12:52	0	1.2	19.4	79.4			-0.02	
Field Technician and Weather Conditions									
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**			
Khalfani	08/31/11	0	29.52	Partly Cloudy	N/A	N/A			

Hansville LF - Well Data - 08/21/2011 through 08/31/2011

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	8/31/2011 14:26	0.3	0.5	19.8	79.4	-0.3	-0.3	72	72	0	0			
Extraction Well 002	8/31/2011 14:17	0.2	0.4	20	79.4	-0.2	-0.2	71	71	0	0			
Extraction Well 003	8/31/2011 14:14	21.9	9.8	0.2	68.1	-0.6	-0.8	70	70	4	4			
Extraction Well 004	8/31/2011 14:10	0.3	0.5	20.1	79.1	-0.3	-0.3	69	70	0	0			
Extraction Well 005	8/31/2011 13:47	0.2	0.5	19.6	79.7	-0.3	-0.3	70	70	0	0			
Extraction Well 006	8/31/2011 13:42	0.1	0.3	20.2	79.4	-0.3	-0.3	74	74	0	0			
Extraction Well 007	8/31/2011 13:53	0	0.1	20.3	79.6	-0.3	-0.3	67	68	0	0			
Extraction Well 008	8/31/2011 13:55	21.4	15.2	0.5	62.9	-0.5	-0.5	68	68	3	3			
Extraction Well 009	8/31/2011 13:59	0.2	0.6	19.8	79.4	-0.3	-0.3	67	67	0	0			
Extraction Well 010	8/31/2011 14:23	18.1	8.4	0.6	72.9	-0.4	-0.4	71	71	0	0			
Extraction Well 011	8/31/2011 14:19	21.7	5.3	0.3	72.7	-0.5	-0.5	71	71	2	2			
Extraction Well 012	8/31/2011 14:02	28.2	6.8	0.4	64.6	-0.9	-0.9	67	67	6	6			
Extraction Well 013	8/31/2011 13:50	0.1	0.2	20.2	79.5	-0.4	-0.3	68	68	0	0			
Native Soil Extraction We	8/31/2011 14:30	0.1	0.2	20.2	79.5	-0.1	-0.1	75	75	0	0			
Native Soil Extraction We	8/31/2011 14:29	0.1	0.3	20.3	79.3	-0.1	-0.1	74	74	0	0			
Native Soil Extraction We	8/31/2011 14:34	0	1.5	18.1	80.4	-0.1	-0.1	73	73	0	0			
Native Soil Extraction We	8/31/2011 14:33	0	3.1	15.3	81.6	-0.1	-0.1	73	73	0	0			
Native Soil Extraction We	8/31/2011 14:38	0	0.1	20.3	79.6	-0.1	-0.1	74	74	0	0			
Native Soil Extraction We	8/31/2011 14:37	0	0.2	20.2	79.6	-0.1	-0.1	72	72	0	0			
Native Soil Extraction We	8/31/2011 14:42	0	0.1	20.3	79.6	-0.1	-0.1	74	74	0	0			
Native Soil Extraction We	8/31/2011 14:40	0	0.8	19.5	79.7	-0.1	-0.1	75	75	0	0			
Native Soil Extraction We	8/31/2011 14:46	0	0.1	20.3	79.6	-0.1	-0.1	75	75	0	0			
Native Soil Extraction We	8/31/2011 14:45	0	0.1	20.3	79.6	-0.1	-0.1	74	74	0	0			
Trench Well TD-1	8/31/2011 13:23	12.7	21	0.2	66.1	0	0	81	81	1	1			
Trench Well TR-1	8/31/2011 13:45	19.1	15.1	0.4	65.4	-0.4	-0.4	72	71	0	0			
Trench Well TR-2	8/31/2011 13:57	19.5	15.1	0	65.4	-0.4	-0.4	67	67	3	3			
Trench Well TR-3	8/31/2011 14:21	26.7	14.3	0	59	-0.4	-0.4	71	71	4	4			
Trench Well TR-4	8/31/2011 14:11	0.2	0.3	20.5	79	-0.4	-0.4	70	70	0	0			
Trench Well TR-5	8/31/2011 14:06	0.3	0.6	19.8	79.3	-0.4	-0.4	68	68	0	0			
Trench Well TR-6	8/31/2011 14:04	30.1	15.9	0.1	53.9	-0.3	-0.4	68	68	3	3			
Trench Well TR-7	8/31/2011 14:07	29	15.1	0.4	55.5	-0.4	-0.4	68	68	3	3			
Well with minimum temperature during reporting period														
Extraction Well 007	8/31/2011 13:53	Init = 67 Adj = 68												
Trench Well TR-2	8/31/2011 13:57	Init = 67 Adj = 67												
Extraction Well 009	8/31/2011 13:59	Init = 67 Adj = 67												
Extraction Well 012	8/31/2011 14:02	Init = 67 Adj = 67												
Well with maximum temperature during reporting period														
Trench Well TD-1	8/31/2011 13:23	Init = 81 Adj = 81												
Field Technician and Weather Conditions														
Technician	**Date**	**Ambient Temp (deg F)**	**Baro Press (in -Hg)**	**General Weather**	**Wind Speed**	**Wind Direction**								
Khalfani	08/31/11	0	29.51	Partly Cloudy	N/A	N/A								

Q2 - APRIL 2011 SUMMARY TABLES
& GROUNDWATER FLOW MAP

Table A-1. Water Level Elevations, Groundwater Monitoring Wells, April 13-14, 2011
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-1	303.7	304.1	240	230	47.03	257.07
MW-2	351.9	352.2	249	244	94.49	257.71
MW-3	329.7	332.8	257	247	71.81	260.99
MW-4	329.9	331.7	245	235	75.70	256.00
MW-5	363.7	366.9	244	234	102.80	264.10
MW-6	332.0	332.7	260	245	75.88	256.82
MW-7	344.3	346.0	259	244	86.99	259.01
MW-8S	296.0	298.9	254	239	44.21	254.69
MW-8D	292.9	294.9	208	198	40.32	254.58
MW-9	283.1	285.4	256	241	31.67	253.73
MW-10	259.1	261.3	248	233	14.99	246.31
MW-11	355.3	357.6	258	243	102.46	255.14
MW-12D	246.6	248.8	242	227	11.00	237.80
MW-12I	245.6	248.1	217	207	10.27	237.83
MW-13S	259.6	261.9	255	240	12.71	249.19
MW-13D	258.1	260.4	205	195	11.58	248.82
MW-14	338.6	341.1	262	247	83.82	257.28

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 2011 Monitoring Event - April 14, 2011

Parameter	Preliminary Cleanup Level (PCL)	MW-05	MW-06	MW-06 DUP	MW-07	MW-12I	MW-13D	MW-14	Trip Blank
Field Parameters									
Dissolved Oxygen (mg/L)		10.49	9.22	--	1.56	0	0	5.1	--
pH (units)		7.22	7.02	--	6.92	6.64	7.36	6.8	--
Specific Conductivity (uS)		61.4	99.9	--	99.9	76.6	99.9	99.9	--
Temperature (degrees C)		9.65	15.59	--	12.42	10.45	10.09	10.58	--
Conventional Parmeters (mg/L, unless otherwise shown)									
Alkalinity		52	150	150	140	73	100	150	--
Ammonia (As N)		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--
Bicarbonate		52	150	150	140	73	100	150	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride	250 [1]	2.6	11	11	3.7	3.4	8.1	26	--
Chemical Oxygen Demand (COD)		5.0 U	5.0 U	5.0 U	7.5	10	13	5.0 U	--
Hydroxide (Alkalinity)		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Nitrate (As N)	10,000	0.90 U	0.90 U	0.90 U	0.92	0.90 U	0.90 U	0.90 U	--
Nitrite (As N)		0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	--
Sulfate	250 [1]	9.1	22	22	5.2	5.5	18	34	--
Total Organic Carbon (TOC)		1.0 U	1.7	1.6	2.3	4.5	1.0 U	2.9	--
Total Coliform (MPN/100 ml)		35.4	3.0	4.1	1.0	2.0	1.0 U	9.7	--
Dissolved Metals (mg/L)									
Arsenic	0.000005	0.00040	0.0013	0.0013	0.00040	0.00040	0.0011	0.022	--
Calcium		8.2	24	23	19	9.9	12	33	--
Copper	0.00274	0.0010 U	0.0010 U	0.0010 U	0.0014	0.0021	0.0010 U	0.0013	--
Iron	0.3 [1]	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	1.3	--
Lead	0.000541	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	--
Magnesium		9.9	30	30	25	13	16	31	--
Manganese	2.24 / 0.05 [1]	0.0013	0.34	0.34	0.0018	0.032	0.044	4.3	--
Potassium		3.0 U	3.1	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--
Sodium		6.1	13	13	7.5	7.4	21	16	--
Volatile Organics Compounds (ug/L)									
Cis-1,2-dichloroethene		1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	5.9	1.0 U
Vinyl chloride	0.025	0.02 U	0.21	0.23	0.02 U	0.16	0.02 U	0.32	0.02 U

-- Not Tested.

U Compound not dectected at reporting limit.

J Result is an estimate.

[1] Value represents a secondary MCL.

Shaded results exceed PCL or MCL.

Table A-3. Hansville Landfill Surface Water Data, Second Quarter 2011 Monitoring Event - April 13, 2011

Parameter	Preliminary Cleanup Level (PCL)	SW-1	SW-4	SW-4 DUP	SW-6	SW-7	SW-10	Trip Blank
Field Parameters								
Dissolved Oxygen (mg/L)		10.59	10.38	--	9.1	11.19	11.16	--
pH (units)		5.4	6.75	--	6.79	6.72	6.84	--
Specific Conductivity (uS)		99.9	99.9	--	51.1	64.7	98.7	--
Temperature (degrees C)		9.06	8.19	--	7.48	9.0	8.97	--
Redox (Mv)		197	127		143	143	139	--
Conventional Parmeters (mg/L, unless otherwise shown)								
Alkalinity		88	140	150	37	43	80	--
Ammonia (As N)		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--
Bicarbonate		88	140	150	37	43	80	--
Carbonate		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride	250 [1]	4.1	16	16	3.0	3.4	6.8	--
Chemical Oxygen Demand (COD)		18	33	30	55	30	23	--
Hardness		100	180	180	51	59	97	
Hydroxide (Alkalinity)		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Nitrate (As N)	10,000	2.3	1.4	1.4	0.90 U	2.2	1.7	--
Nitrite (As N)		0.60 U	0.60 U	0.60	0.60 U	0.60 U	0.60 U	--
Sulfate	250 [1]	12	22	22	6.6	9.0	11	--
Total Organic Carbon (TOC)		3.1	12	11	5.1	9.9	8.8	--
Total Suspended Solids (TSS)		5.0 U	10 U	10 U	10 U	10 U	13	
Turbidity (NTU)		0.72	2.8	6.4	2.3	17	7.0	
Fecal Coliform (MPN/100 ml)		1.0 U	1.0 U	1.0 U	1.0 U	7.0	2.0	--
Dissolved Metals (mg/L)								
Arsenic	0.000005	0.0012	0.0013	0.0013	0.0016	0.00088	0.0016	--
Calcium		14	22	23	7.7	10	13	--
Copper	0.00274	0.00036	0.00056	0.00048	0.00081	0.00083	0.00080	--
Iron	0.3 [1]	0.15 U	0.15 U	0.15 U	0.26	0.15 U	0.15 U	--
Lead	0.000541	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	--
Magnesium		17	29	29	7.7	8.1	16	--
Manganese	2.24 / 0.05 [1]	0.00098	0.058	0.061	0.019	0.0051	0.0040	--
Potassium		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--
Sodium		5.7 B	15 B	15 B	4.7 B	5.2 B	6.9 B	--
Volatile Organics Compounds (ug/L)								
Vinyl chloride	0.025	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

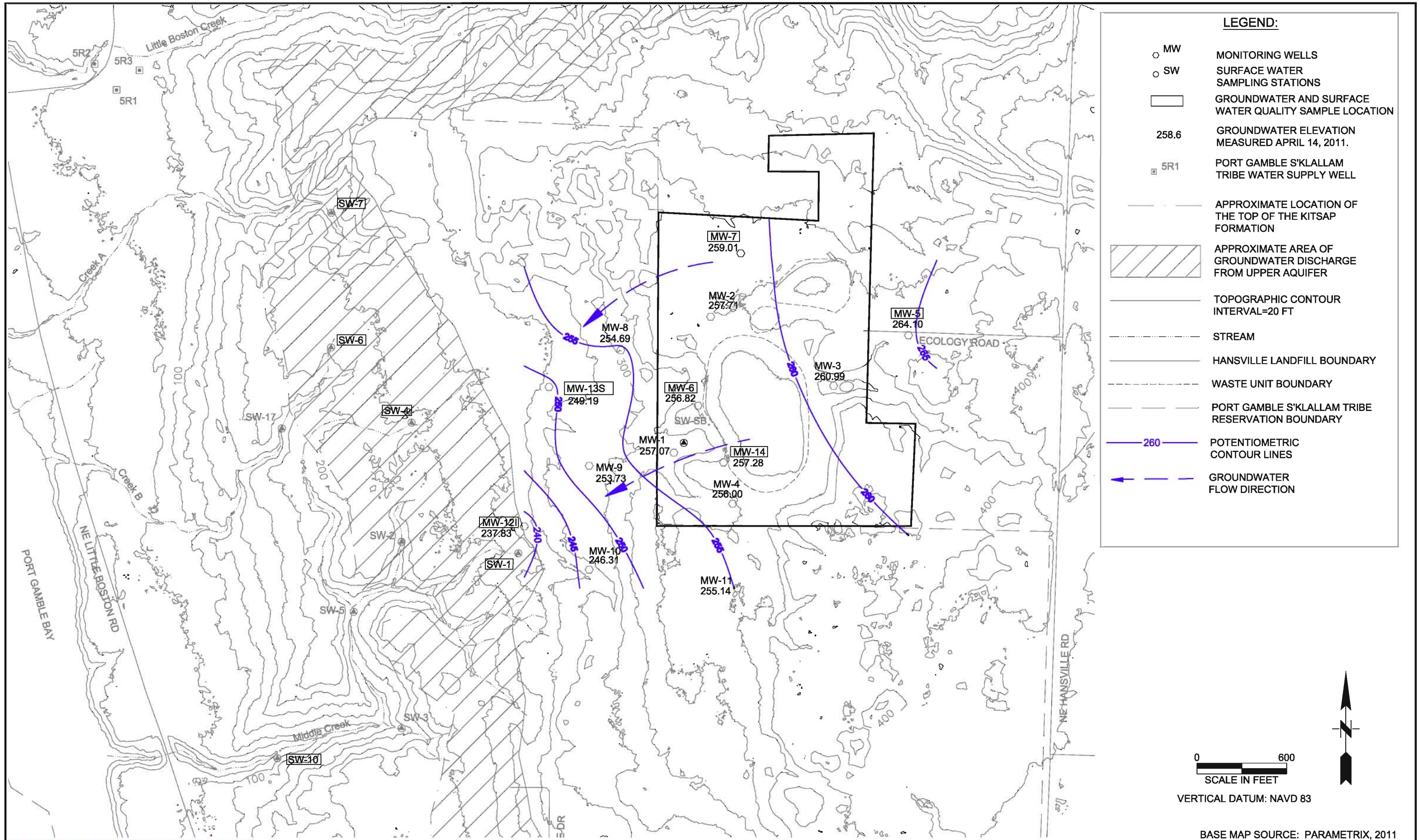
-- Not Tested.

U Compound not dectected at reporting limit.

J Result is an estimate.

[1] Value represents a secondary MCL.

Shaded results exceed PCL or MCL.



LEGEND:

- MW — MONITORING WELLS
- SW — SURFACE WATER SAMPLING STATIONS
- GROUNDWATER AND SURFACE WATER QUALITY SAMPLE LOCATION
- 258.6 — GROUNDWATER ELEVATION MEASURED APRIL 14, 2011.
- 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

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PROJECT NO. 042110017.00	DES BY L.L.	UPPER AQUIFER GROUNDWATER CONTOURS APRIL 14, 2011 HANSVILLE LANDFILL KITSAP COUNTY, WASHINGTON	DATE APRIL 2011
SCALE AS SHOWN	CHK BY D.V.		FIGURE A-1
CAD FILE FIGURE A-1	APP BY G.H.		

HANSVILLE LANDFILL - GAS COLLECTION SYSTEM
MONITORING DATA/FLOW ADJUSTMENT SPREADSHEET **DATE: 4/21/2011**

	MONITORED DATA							CALCULATED DATA									
WELL	PRESSURE INCHES W.C.	CH4 (% VOL)	O2 (% VOL)	CO2 (% VOL)	TEMP (o F.)	INITIAL VELOCITY (FPM)	ADJUSTED VELOCITY (FPM)	FLOW (CFM)	H2O (% VOL)	N2 (% VOL)	RES. N2 (% VOL)	% ADJ. (TAR. N2)	% ADJ. (TAR. CH4)	COMMENTS	VP	ave. barometer	run size (inches)
Interior Wells and Trenches:																	
R-1	-0.70	0	21	0	55	0	0	0.0	1	78	0	+8	-100	closed	T	29.98	1.913
R-2	-0.50	0	21	0	55	0	0	0.0	1	78	0	+8	-100	closed	T	29.98	1.913
R-3	-1.20	28	0	10	59	140	140	2.1	2	60	60	-70	-20		T	29.98	1.913
R-4	-0.70	0	21	0	56	0	0	0.0	1	78	0	+8	-100	closed	T	29.98	1.913
R-5	-0.70	0	21	0	57	0	0	0.0	2	77	0	+8	-100	closed	CL	29.98	1.913
R-6	-0.70	0	21	0	55	0	0	0.0	1	78	0	+8	-100	closed	CL	29.98	1.913
R-7	-0.80	0	21	0	56	0	0	0.0	1	78	0	+8	-100	closed	T	29.98	1.913
R-8	-0.90	28	0	16	62	120	120	1.8	2	54	54	-62	-20		T	29.98	1.913
R-9	-0.70	0	21	0	57	0	0	0.0	2	77	0	+8	-100	closed	T	29.98	1.913
R-10	-0.90	16	0	6	66	15	15	0.2	2	76	76	-90	-54		T	29.98	1.913
R-11	-1.00	28	0	6	60	80	80	1.2	2	64	64	-75	-20		T	29.98	1.913
R-12	-1.40	33	0	7	64	200	200	3.0	2	58	58	-67	-6		T	29.98	1.913
R-13	-0.80	0	21	0	57	0	0	0.0	2	77	0	+8	-100	closed	T	29.98	1.913
TD-1	0.00	11	0	20	61	45	45	0.7	2	67	67	-79	-69		T	29.98	1.913
TR-1	-0.80	0	21	0	56	0	0	0.0	1	78	0	+8	-100	closed	T	29.98	1.913
TR-2	-0.80	26	0	13	62	85	85	1.3	2	59	59	-69	-26		T	29.98	1.913
TR-3	-0.80	34	0	13	59	180	180	2.7	2	51	51	-59	-3		T	29.98	1.913
TR-4	-0.80	0	21	0	57	0	0	0.0	2	77	0	+8	-100	closed	T	29.98	1.913
TR-5	-0.80	0	21	0	53	0	0	0.0	1	78	0	+8	-100	closed	T	29.98	1.913
TR-6	-0.70	36	0	13	62	80	80	1.2	2	49	49	-56	+3		T	29.98	1.913
TR-7	-0.90	39	0	13	58	110	110	1.6	2	46	46	-52	+11		T	29.98	1.913
								15.8									
BLOWER/FLARE FACILITY																	
MAN(+)	0.00	26	2.6	10	70	100	100	14.9	2	59	49	-56	-53		T	29.98	6.031
MAN (-)	-16.10	26	2.4	10	63	100	100	14.9	2	60	51	-58	-53		WO	29.98	6.031

HANSVILLE LANDFILL - GAS COLLECTION SYSTEM
MONITORING DATA/FLOW ADJUSTMENT SPREADSHEET **DATE: 4/21/2011**

Perimeter Wells:

WELL	PRESSURE INCHES W.C	CH4 (% VOL)	O2 (% VOL)	CO2 (% VOL)
N-1S	-0.2	0	21	0
N-1D	-0.2	0	21	0
N-2S	-0.3	0	20	0
N-2D	-0.2	0	21	0
N-3S	-0.4	0	21	0
N-3D	-0.3	0	21	0
N-4S	-0.3	0	21	0
N-4D	-0.2	0	21	0
N-5S	-0.4	0	21	0
N-5D	-0.3	0	20	0

Gas Probes:

PROBE	PRESSURE INCHES W.C	CH4 (% LEL)	O2 (% VOL)	CO2 (% VOL)
GP-1	0	0	21	0
GP-2S	0	0	20	0
GP-2M	0	0	19	0
GP-2D	0	0	21	0
GP-3	0	0	21	0
GP-4	0	0	21	0
GP-5	0	0	21	0
GP-6	0	0	21	0
GP-7	0	0	20	1

AMBIENT CONDITIONS:

Weather: 56 ^{o} F, overcast
Barometer: 29.98 in. of Hg rising

EQUIPMENT STATUS:

Blower #1: 29,600 hrs - Off
Blower #2: 142,100 hrs - On
Condensate Sump #1: 42% Full
Condensate Sump #2: 35% Full

COMMENTS:

Monitored system with the Gem-500.

VP = Valve Position
T = Throttled
WO = Wide Open
CR = Cracked

Q1 - JANUARY 2011 SUMMARY TABLES

Table A-1. Hansville Landfill RI/FS Groundwater Data, First Quarter 2011 Monitoring Event

Analyte	Preliminary Cleanup Level (PCL)	Units	MW-05 1/25/2011	MW-5 Dup 1/25/2011	MW-06 1/25/2011	MW-07 1/25/2011	MW-12I 1/26/2011	MW-13D0 1/26/2011	MW-14 1/25/2011	Trip Blank 1/25/2011
Field Parameters										
Dissolved Oxygen		mg/L	8.85	--	2.23	1.97	0.11	0.0	0.95	--
pH		s.u.	7.36	--	7.22	7.02	7.04	7.43	7.05	--
Specific Conductivity		µmhos/cm	43.4	--	99.9	93.8	48.0	83.3	99.9	--
Temperature		C	10.89	--	13.83	13.90	10.98	10.86	11.08	--
Conventional Parameters										
Alkalinity		mg/L	55	55	180	140	69	100	140	--
Ammonia-N		mg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.13	0.10 U	--
Bicarbonate		mg/L	55	55	180	140	69	100	140	--
Carbonate		mg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride	250 [1]	mg/L	2.8	3.0	21	1.3	3.6	9.0	8.0	--
COD		mg/L	5.3 J	13 J	5.3 J	5.0 UJ	10 J	5.0 UJ	5.0 UJ	--
Hydroxide (Alkalinity)		mg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Nitrate-Nitrogen	10.000	mg/L	0.32 J	0.32 J	0.38 J	1.0 J	0.010 UJ	0.066 J	0.010 UJ	--
Nitrite-Nitrogen		mg/L	0.010 U	0.010 U	0.26	0.010 U	0.010 U	0.010 U	0.010 U	--
Sulfate	250 [1]	mg/L	9.8	10	27	5.6	5.8	19	19	--
TOC		mg/L	1.0 U	1.0 U	1.3	1.7	2.0	1.0 U	1.0	--
Total Coliform		MPN/100 ml	7.4	1.0	17.1	2.0	1 U	1.0	15.8	--
Dissolved Metals										
Arsenic	0.000005	mg/L	0.0020	0.0017	0.0049	0.00059	0.0019	0.0031	0.026	--
Calcium		mg/L	7.7	7.8	28	18	8.1	12	22	--
Copper	0.00274	mg/L	0.0010 U	0.0010 U	0.0011	0.0012	0.0017	0.0010 U	0.0010 U	--
Iron	0.3 [1]	mg/L	0.15 U	0.15 U	0.21	0.15 U	0.15 U	0.15 U	0.96	--
Lead	0.000541	mg/L	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	--
Magnesium		mg/L	8.9	9.1	35	24	11	15	20	--
Manganese	2.24 / 0.05 [1]	mg/L	0.0013 J	0.00064 J	0.50 J	0.0012 J	0.027 J	0.048 J	2.9 J	--
Potassium		mg/L	3.0 U	3.0 U	3.4	3.0 U	3.0 U	3.0 U	3.0 U	--
Sodium		mg/L	5.3	5.2	12	6.7	5.9	19	11	--
Volatile Organics										
1,1,1,2-Tetrachloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	800	µg/L	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane		µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table A-1. Hansville Landfill RI/FS Groundwater Data, First Quarter 2011 Monitoring Event

Analyte	Preliminary Cleanup Level (PCL)	Units	MW-05 1/25/2011	MW-5 Dup 1/25/2011	MW-06 1/25/2011	MW-07 1/25/2011	MW-12I 1/26/2011	MW-13D0 1/26/2011	MW-14 1/25/2011	Trip Blank 1/25/2011
1,3-Dichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Chlorohexane		µg/L	--	--	--	--	--	--	--	--
2,2-Dichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone		µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorotoluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chlorotoluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Methyl-2-pentanone		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon disulfide		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	4.5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.8	1.0 U
cis-1,3-Dichloropropene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene		µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert-butyl ether		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	4.4 [2]	µg/L	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
n-Butylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Hexane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
p-Isopropyltoluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
sec-Butylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Xylenes		µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
trans-1,2-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U
trans-1,3-Dichloropropene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table A-1. Hansville Landfill RI/FS Groundwater Data, First Quarter 2011 Monitoring Event

Analyte	Preliminary Cleanup Level (PCL)	Units	MW-05 1/25/2011	MW-5 Dup 1/25/2011	MW-06 1/25/2011	MW-07 1/25/2011	MW-12I 1/26/2011	MW-13D0 1/26/2011	MW-14 1/25/2011	Trip Blank 1/25/2011
Trichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	2400	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	0.025	µg/L	0.020 U	0.020 U	0.24 J	0.020 U	0.21 J	0.020 U	0.45 J	0.020 U

- - = Not Tested
U = Compound undetected at the specified detection limit.
[1] = Value represents a secondary MCL; chemicals that exceed the secondary MCL do not need to be addressed in the Feasibility Study (Ecology 2004) .
= Exceeds PCL or MCL

Table A-2. Groundwater Level Data, First Quarter 2011

	Elevations		Screen Elevation		Depth to Groundwater (ft)	Water Level Elevation
Well ID	Ground	PVC	Top	Bottom	1/27/11	1/27/11
MW-1	303.7	304.1	240	230	47.25	256.9
MW-2	351.9	352.2	249	244	94.75	257.5
MW-3	329.7	332.8	257	247	72.05	260.8
MW-4	329.9	331.7	245	235	75.86	255.8
MW-5	363.7	366.9	244	234	103.01	263.9
MW-6	332.0	332.7	260	245	76.25	256.5
MW-7	344.3	346.0	259	244	87.25	258.8
MW-8S	296.0	298.9	254	239	44.60	254.3
MW-8D	292.9	294.9	208	198	43.60	251.3
MW-9	283.1	285.4	256	241	32.55	252.9
MW-10	259.1	261.3	248	233	15.50	245.8
MW-11	355.3	357.6	258	243	102.63	255.0
MW-12D	246.6	248.8	242	227	11.30	237.5
MW-12I	245.6	248.1	217	207	10.54	237.6
MW-13S	259.6	261.9	255	240	13.23	248.7
MW-13D	258.1	260.4	205	195	12.13	248.3
MW-14	338.6	341.1	262	247	83.97	257.1

Table B-1. Hansville Landfill RI/FS Surface Water Data, First Quarter 2011 Monitoring Event

Analyte	Preliminary Cleanup Level (PCL)	Units	SW-1 1/26/2011	SW-1 Dup 1/26/2011	SW-4 1/26/2011	SW-6 1/26/2011	SW-7 1/25/2011	SW-10 1/25/2011	Trip Blank 1/25/2011
Field Parameters									
Dissolved Oxygen		mg/L	10.37	--	10.43	8.86	11.17	11.15	--
pH		s.u.	6.30	--	7.10	7.25	5.29	6.23	--
Specific Conductivity		µmhos/cm	73.1	--	99.9	36.6	50.2	72.3	--
Temperature		C	9.41	--	8.71	7.96	8.05	8.55	--
Redox		MV	165	--	120	135	180	132	--
Conventional Parameters									
Alkalinity		mg/L	90	86	150	37	48	83	--
Ammonia-N		mg/L	0.10 U	0.10 U	0.10 U	0.13	0.10 U	0.10 U	--
Bicarbonate		mg/L	90	86	150	37	48	83	--
Carbonate		mg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Chloride	250 [1]	mg/L	4.5	4.4	18	3.9	5.2	7.4	--
COD		mg/L	13	10	34	63	32	24	--
Fecal Coliform		CFU/100 ml	1	1 U	1	1 U	10	20	--
Hardness		mg/L	100	100	180	49	61	98	--
Hydroxide (Alkalinity)		mg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Nitrate-Nitrogen	10.000	mg/L	2.3 J	2.3 J	1.5 J	1.2 J	2.9 J	2.1 J	--
Nitrite-Nitrogen		mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	--
Sulfate	250 [1]	mg/L	13	13	24	7.5	11	11	--
TOC		mg/L	1.6	1.6	10	18	9.1	7.6	--
TSS		mg/L	4.4	5.0 U	5.0 U	4.8 U	12	6.2	--
Turbidity		NTU	0.74	0.67			2.6	2.2	--
Dissolved Metals									
Arsenic	0.000005	mg/L	0.0016	0.0015	0.0017	0.0018	0.0011	0.0017	--
Calcium		mg/L	14	14	24	8.2	11	14	--
Copper	0.00274	mg/L	0.00086 J	0.00034 J	0.00059 J	0.0011 J	0.0010 J	0.0049 J	--
Iron	0.3 [1]	mg/L	0.15 U	0.15 U	0.15 U	0.17	0.15 U	0.15 U	--
Lead	0.000541	mg/L	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	--
Magnesium		mg/L	16	16	29	7.0	7.9	15	--
Manganese	2.24 / 0.05 [1]	mg/L	0.00053	0.00052	0.065	0.014	0.0058	0.0043	--
Potassium		mg/L	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--
Sodium		mg/L	5.8	6.2	17	5.0	5.8	7.3	--
Volatile Organics									
1,1,1,2-Tetrachloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	800	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane		µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromoethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table B-1. Hansville Landfill RI/FS Surface Water Data, First Quarter 2011 Monitoring Event

Analyte	Preliminary Cleanup Level (PCL)	Units	SW-1 1/26/2011	SW-1 Dup 1/26/2011	SW-4 1/26/2011	SW-6 1/26/2011	SW-7 1/25/2011	SW-10 1/25/2011	Trip Blank 1/25/2011
1,2-Dichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Chlorohexane		µg/L	--	--	--	--	--	--	--
2,2-Dichloropropane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone		µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorotoluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chlorotoluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Methyl-2-pentanone		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon disulfide		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	4.5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene		µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert-butyl ether		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	4.4 [2]	µg/L	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
n-Butylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Hexane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
p-Isopropyltoluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
sec-Butylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table B-1. Hansville Landfill RI/FS Surface Water Data, First Quarter 2011 Monitoring Event

Analyte	Preliminary Cleanup Level (PCL)	Units	SW-1 1/26/2011	SW-1 Dup 1/26/2011	SW-4 1/26/2011	SW-6 1/26/2011	SW-7 1/25/2011	SW-10 1/25/2011	Trip Blank 1/25/2011
Toluene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Xylenes		µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
trans-1,2-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	2400	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	0.025	µg/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

- - = Not Tested
U = Compound undetected at the specified detection limit
J = Estimated value based on QC review
[1] = Value represents a secondary MCL; chemicals that exceed the secondary MCL do not need to be addressed in the Feasibility Study (Ecology 2004) .
= Exceeds PCL or MCL

Appendix D

2011 Groundwater Statistics and Time Series Plots

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Table D-1: Statistical Evaluations, Hansville Landfill, 2011

Arsenic (mg/L)							
Well	*Mean*	*LCL*	*UCL*	*Site Cleanup Level*	*Mann-Kendall*	*Sens Slope*	*Trend*
MW-05	0.00155	0.00064	0.00246	0.005	—	—	—
MW-06	0.00303	0.00128	0.00477	0.005	—	—	—
MW-07	0.00168	-0.000156	0.0035	0.005	—	—	—
MW-12I	0.00248	0.00126	0.0037	0.005	—	—	—
MW-13D	0.0026	0.00142	0.00378	0.005	—	—	—
MW-14	0.0228	0.02	0.0255	0.005	-2	-0.00132	N
Vinyl Chloride (µ/L)							
Well	*Mean*	*LCL*	*UCL*	*Site Cleanup Level*	*Mann-Kendall*	*Sens Slope*	*Trend*
MW-05	--	0.002	0.002	0.025	—	—	—
MW-06	0.19	0.13	0.25	0.025	-4	-0.0233	↓
MW-07	--	0.002	0.002	0.025	—	—	—
MW-12I	0.203	0.164	0.241	0.025	2	0.025	N
MW-13D	0.0082	-0.0000925	0.0072	0.025	—	—	—
MW-14	0.318	0.205	0.43	0.025	-4	-0.075	↓

Footnotes:

N=4

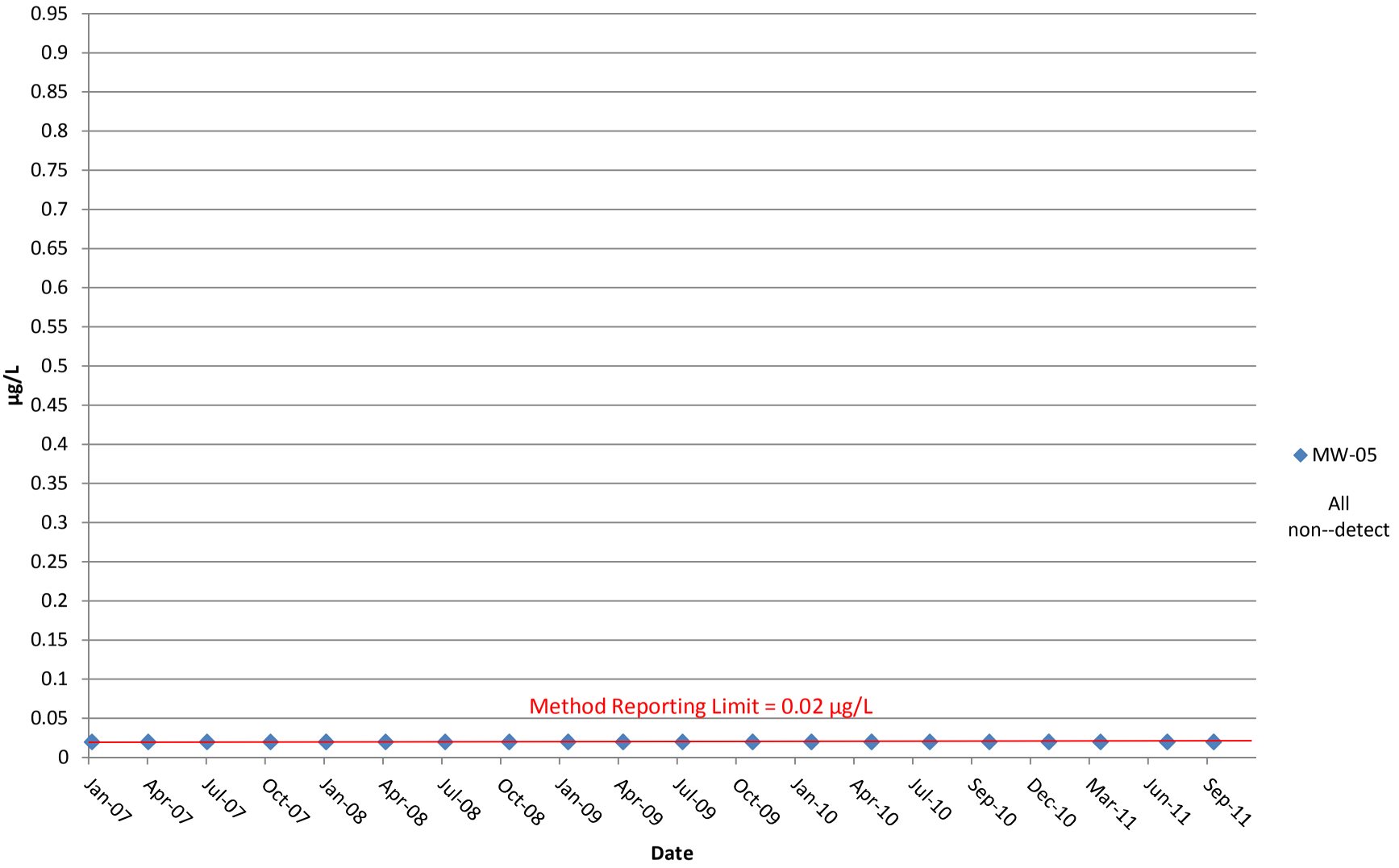
Mean, LCL and UCL at 95%

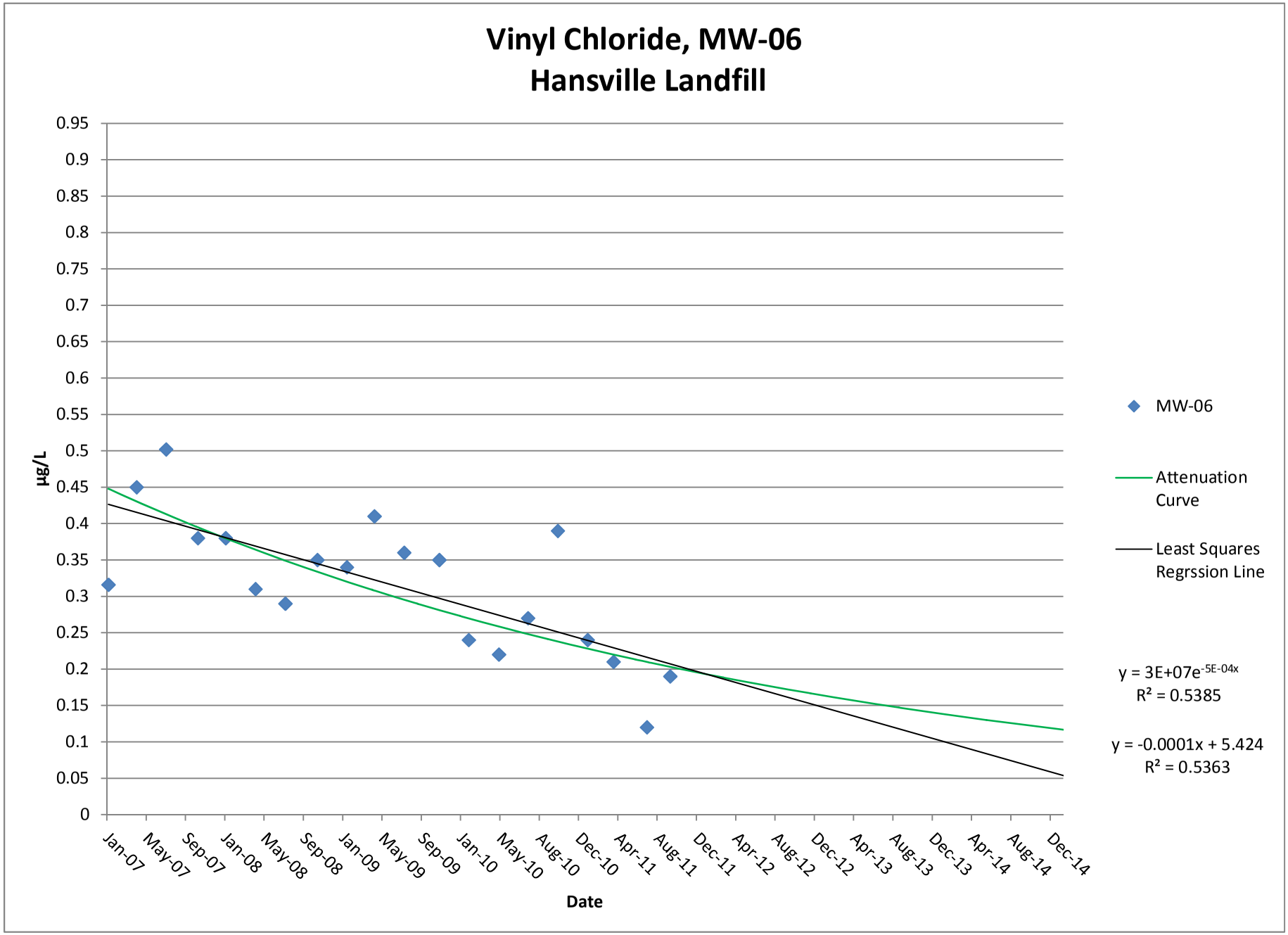
NDs set at 1/2 the MDL

-- Not applicable. Means were not caluclated for wells (MW-5 and MW-7) that only reported non-detects at the project-specific MDL.

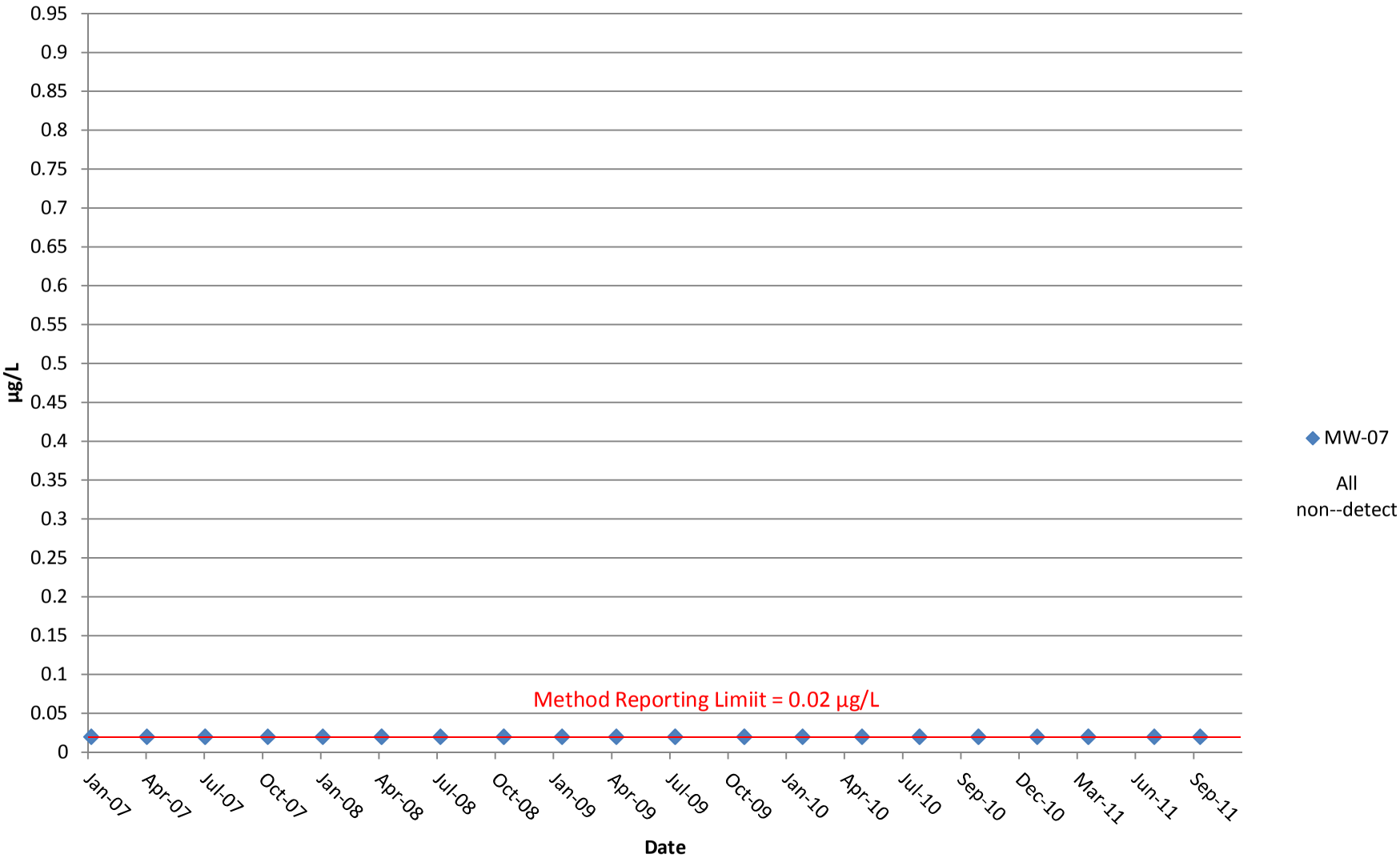
— Not applicable. Trend analysis was only performed for downgradient wells with COCs that exceeded site-specific cleanup levels.

Vinyl Chloride , MW-05
Hansville Landfill

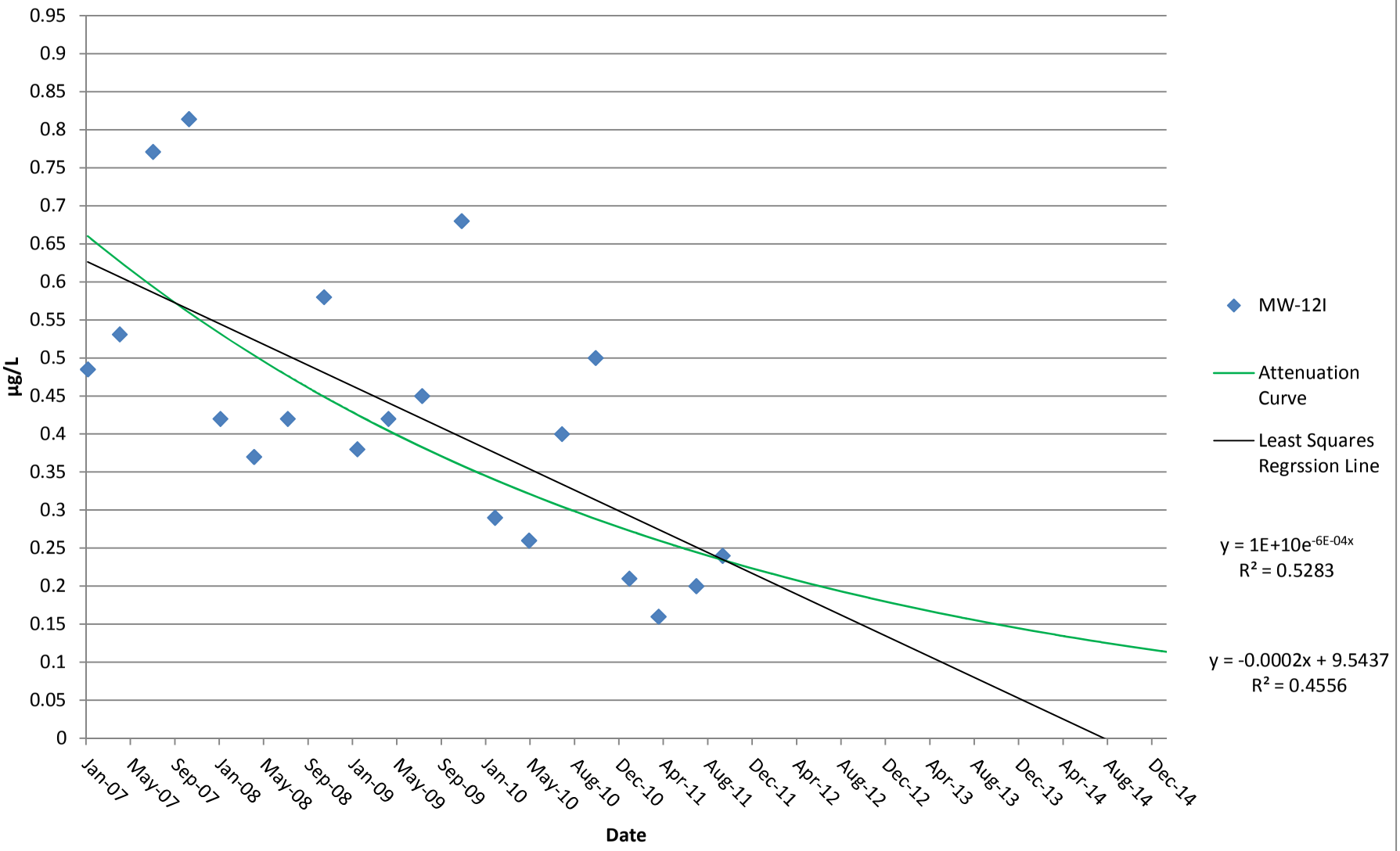



Vinyl Chloride, MW-06
Hansville Landfill
µg/L
0.95
0.9
0.85
0.8
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jan-07
May-07
Sep-07
Jan-08
May-08
Sep-08
Jan-09
May-09
Sep-09
Jan-10
May-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Date
MW-06
Attenuation Curve
Least Squares Regrssion Line
y = 3E+07e-5E-04x
R² = 0.5385
y = -0.0001x + 5.424
R² = 0.5363

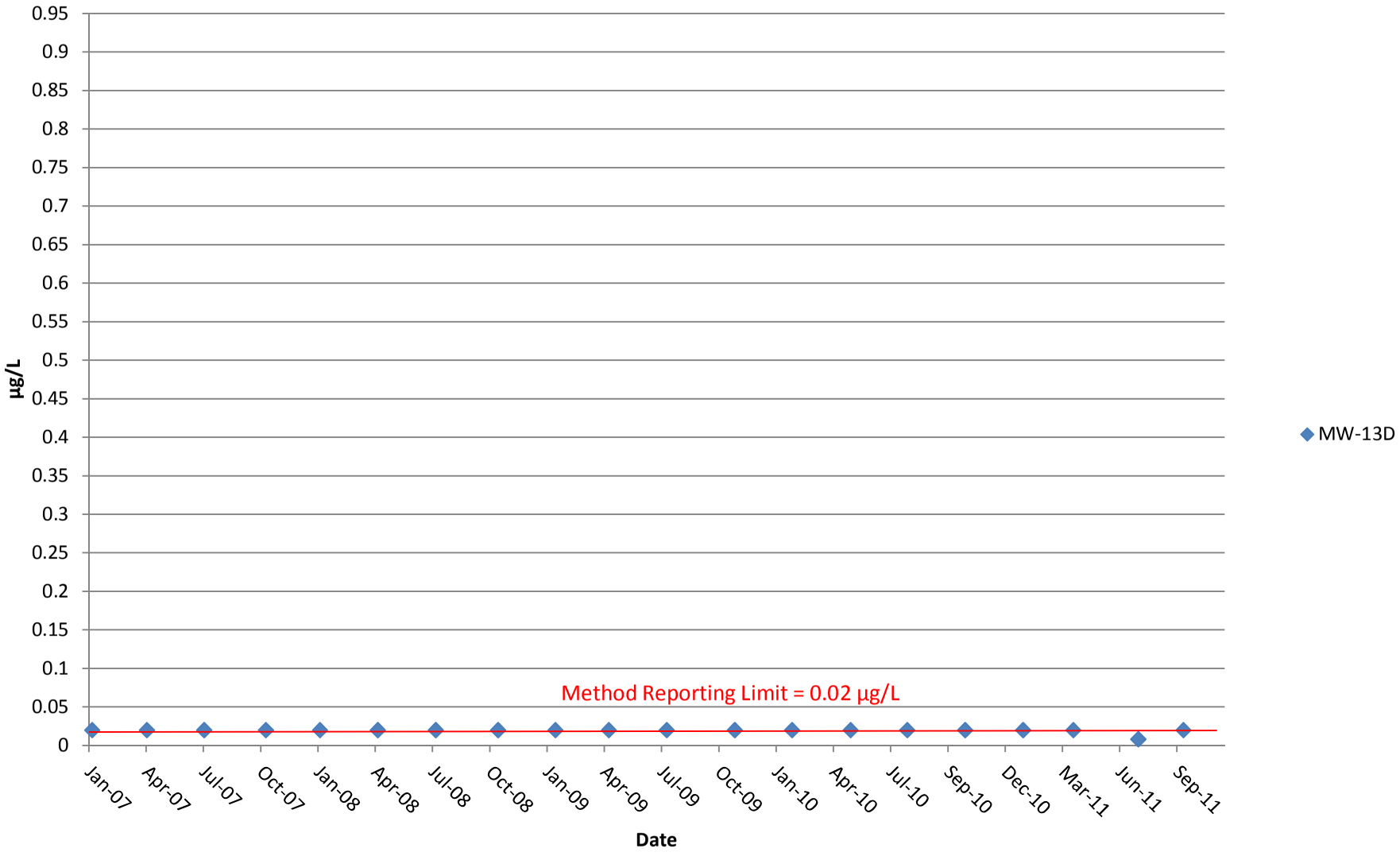
Vinyl Chloride , MW-07
Hansville Landfill



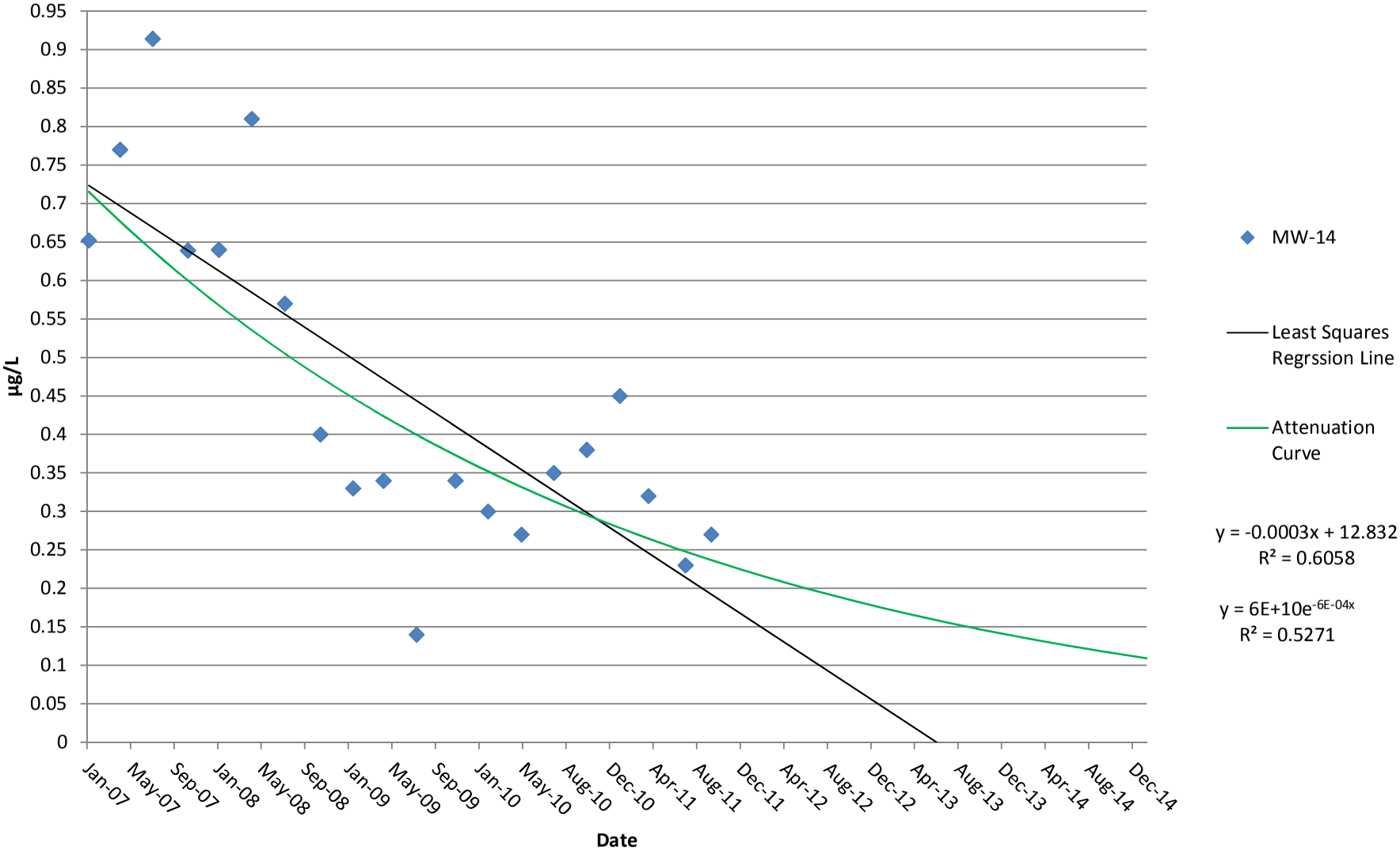
Vinyl Chloride, MW-12I
Hansville Landfill

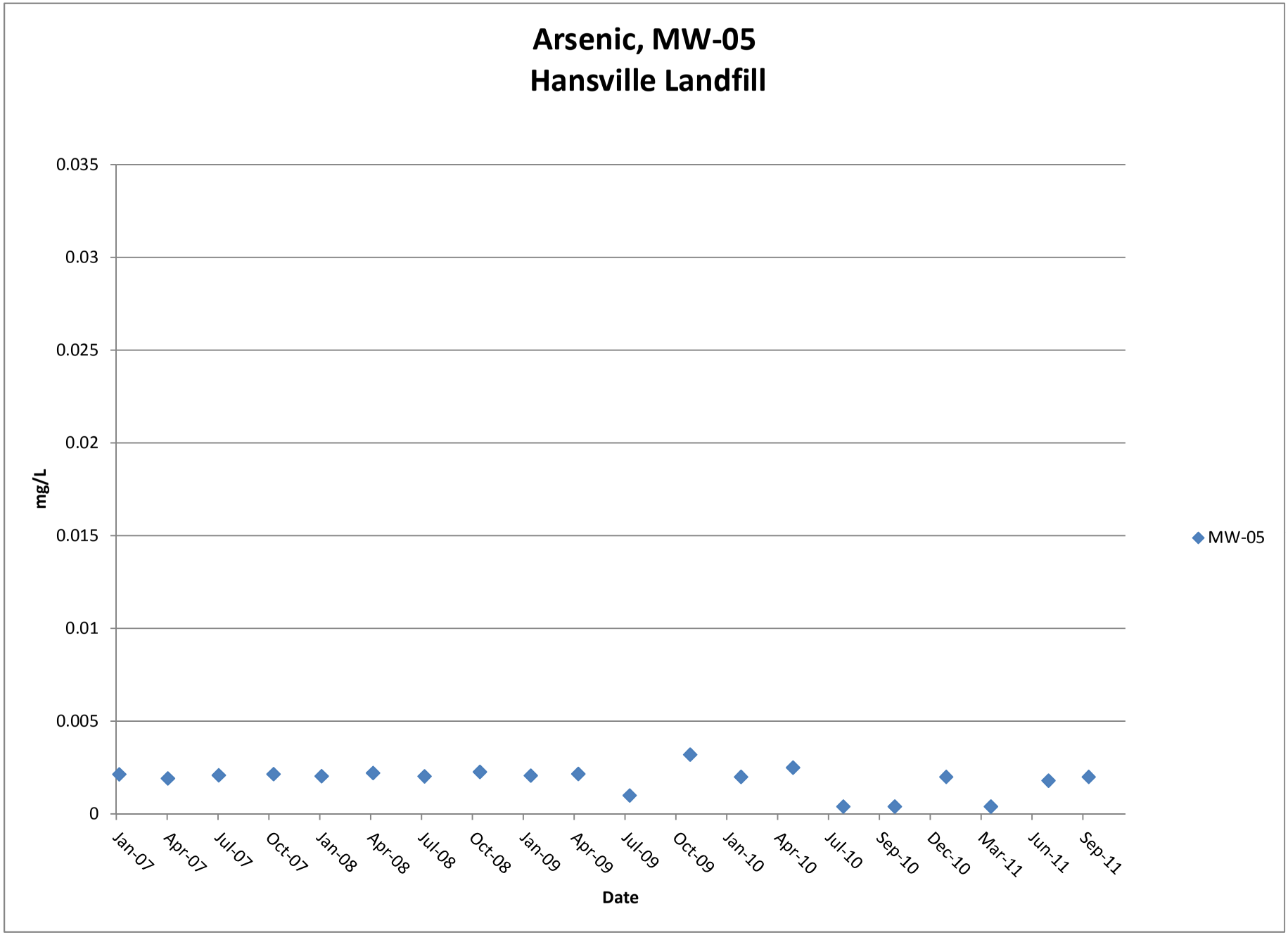


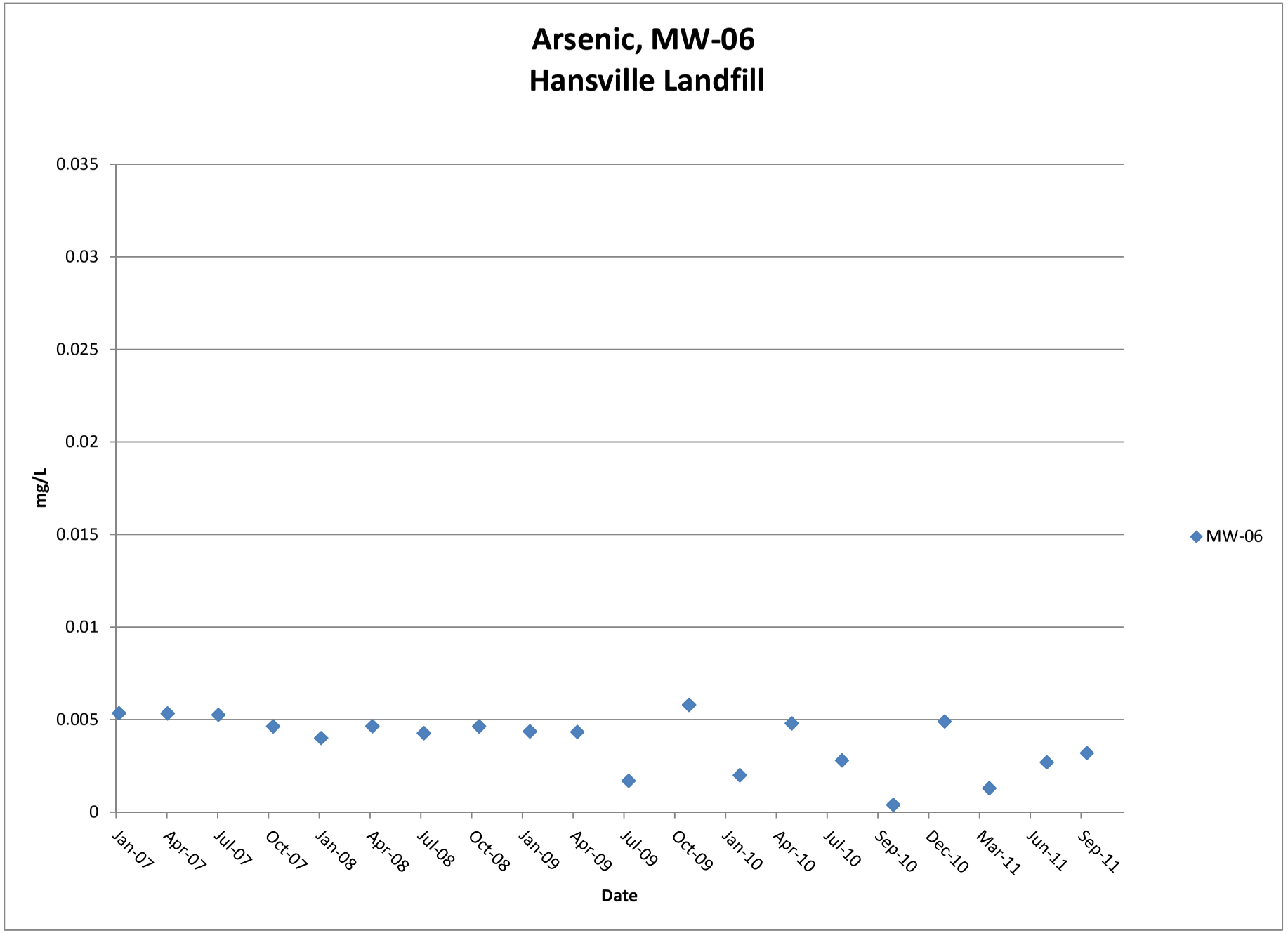
Vinyl Chloride, MW-13D
Hansville Landfill

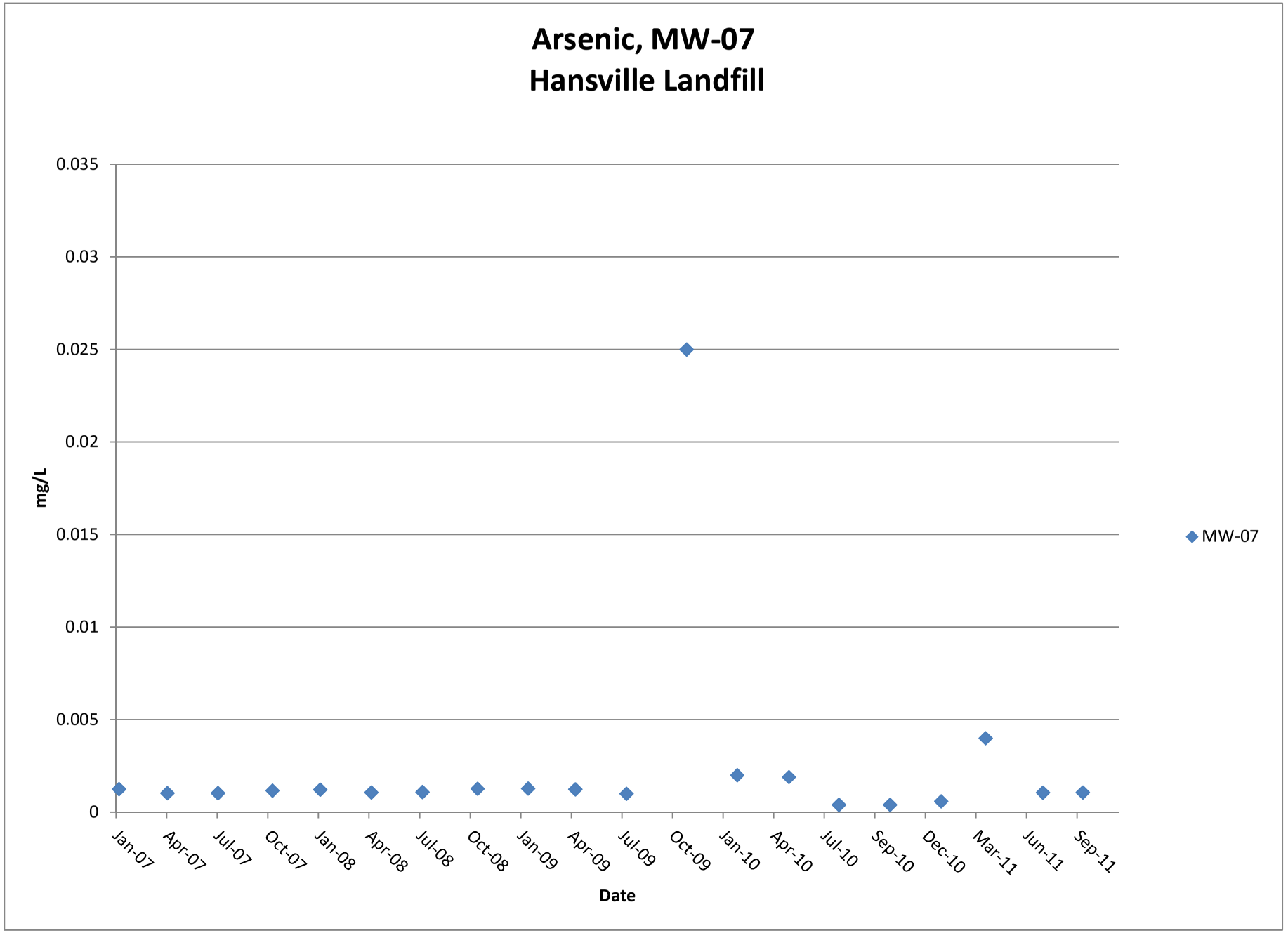


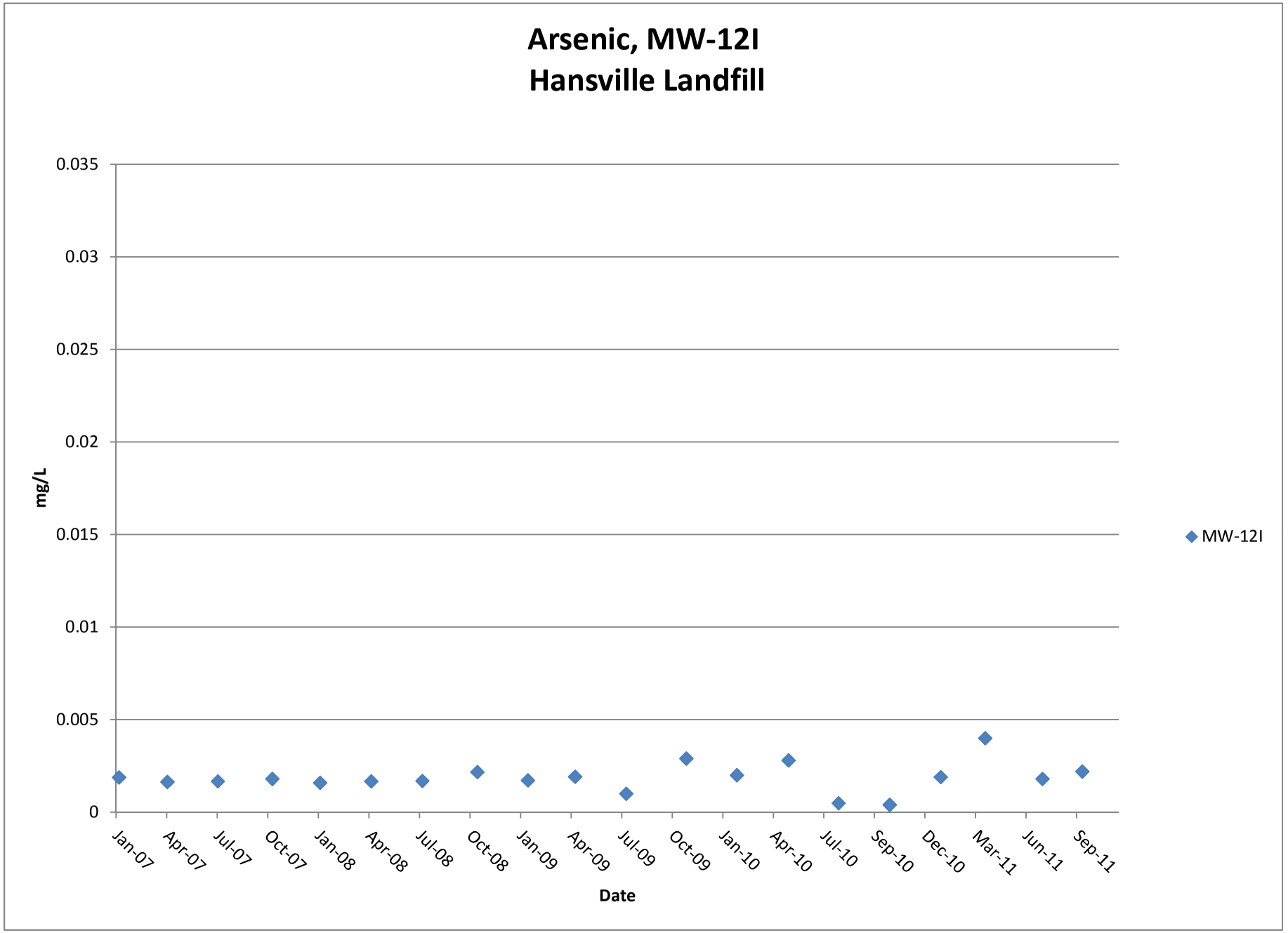
Vinyl Chloride, MW-14
Hansville Landfill

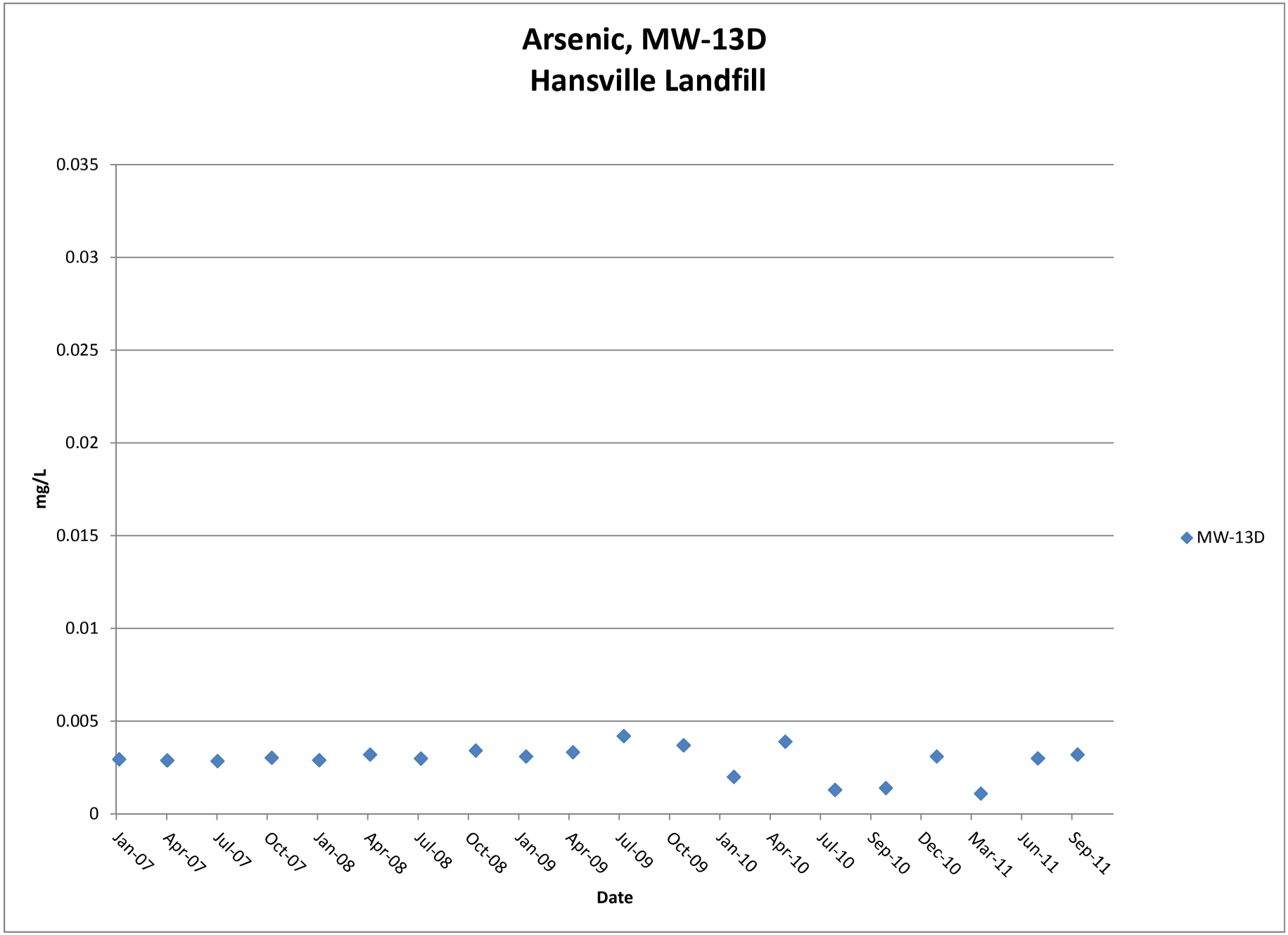


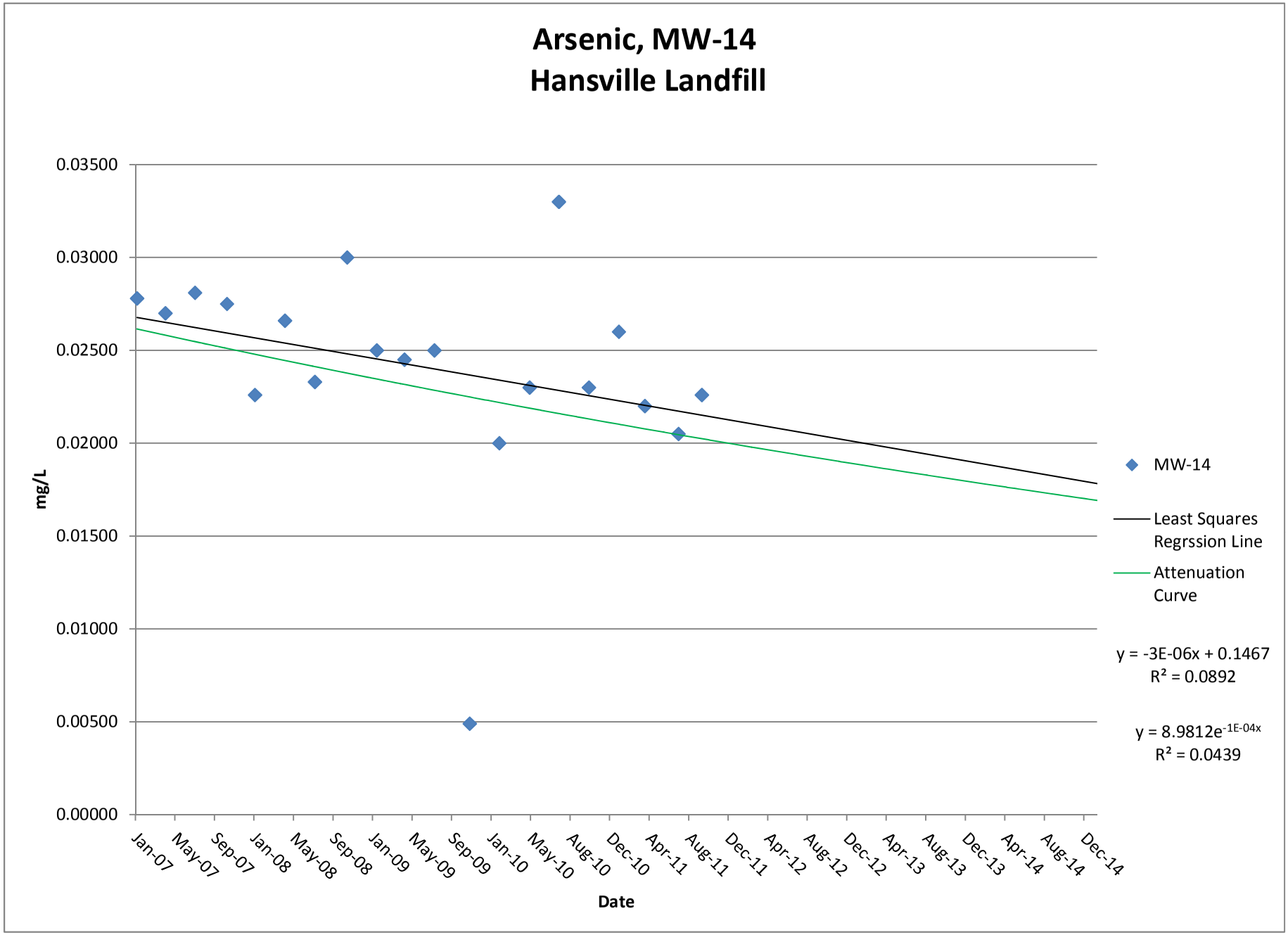

Arsenic, MW-05
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Date
MW-05


Arsenic, MW-06
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Date
MW-06


Arsenic, MW-07
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Date
MW-07


Arsenic, MW-12I
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Date
MW-12I


Arsenic, MW-13D
Hansville Landfill
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
mg/L
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Date
MW-13D


Arsenic, MW-14
Hansville Landfill
0.03500
0.03000
0.02500
0.02000
0.01500
0.01000
0.00500
0.00000
mg/L
Jan-07
May-07
Sep-07
Jan-08
May-08
Sep-08
Jan-09
May-09
Sep-09
Jan-10
May-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Date
MW-14
Least Squares Regrssion Line
Attenuation Curve
y = -3E-06x + 0.1467
R² = 0.0892
y = 8.9812e-1E-04x
R² = 0.0439

Appendix E

Fourth Quarter (October) 2011 Field Sampling Sheets

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: MW-05
Sample ID: MW-05
Date: 10/4/11
Weather: Cloudy

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
WL METER SENSING DTW @ ~127 FT. MONITORING FLOW FOR DROP OFF
Start 1200

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1203		10.47	115	5.35	7.40	241		300
1206		10.83	118	5.20	7.34	241		
1209		11.32	119	5.16	7.30	238		
1212		12.49	119	5.11	7.26	237		
1215		13.04	119	5.08	7.22	237		
1218		13.39	119	5.07	7.23	238		
1221		13.59	120	5.05	7.22	238		
1224		13.74	120	5.05	7.21	239		

Observations (color, odor, anomalies, etc)
Grundfos : 214

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

SAMPLER: SAM ADLINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: MW-6
Sample ID: MW-6
Date: 10/4/11
Weather: Cloudy

75.60 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

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:
Start: 0941
Grundfos: 190
MW-20DD TAKEN @ SAME TIME

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0949	75.90	14.87	326	0.25	6.93	264		
0952	75.90	15.49	367	0.23	6.87	244		
0955	75.90	15.72	370	0.21	6.87	234		
0958	75.90	15.78	367	0.18	6.87	223		
1001	75.89	15.82	376	0.21	6.86	221		
1004	75.89	15.85	373	0.20	6.86	218		

Observations (color, odor, anomalies, etc)

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

SAMPLER: SAM ADDINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: MW-7
Sample ID: MW-7
Date: 10/4/11
Weather: Cloudy

86.00 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
Start 0838
Grundfos : 200

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.
0845	86.10	11.50	255	0.97	6.71	340		
0848	86.10	11.67	254	0.98	6.75	334		
0851	86.09	11.84	254	0.95	6.78	328		
0854	86.10	12.03	253	0.94	6.80	323		
0857	86.10	12.15	252	0.94	6.81	321		
0900	86.10	12.29	255	0.94	6.82	318		

Observations (color, odor, anomalies, etc)

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

SAMPLER: Wayne Chang
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: MW-121
Sample ID: MW-121
Date: 10/4/11
Weather: Cloudy

10.68 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 74
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
~~Start : 0916~~
~~Grundfos : 190~~
Start : 1335

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.
1338	10.70	10.57	162	0.14	7.30	226		
1341	10.70	10.70	163	0.12	7.25	222		
1344	10.90	10.52	163	0.80	7.19	223		
1347	10.90	10.84	168	0.11	7.16	224		
1350	10.95	10.88	173	0.09	7.15	225		
1353	10.95	10.89	175	0.06	7.14	225		
1356	10.95	10.93	176	0.05	7.15	226		

Observations (color, odor, anomalies, etc)
Grundfos unplugged, 7 7 flow

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

SAMPLER: SAM ADDINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: MW-13D
Sample ID: MW-13D
Date: 10/4/11
Weather: OVERCAST

13.10 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 84
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

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.
1252	13.30	10.44	220	0.26	7.30	181		300
1255	13.30	10.79	224	0.10	7.33	130		
1258	13.30	11.04	227	0.07	7.35	131		
1301	13.24	11.25	228	0.03	7.38	136		
1304	13.30	11.32	229	0.03	7.39	139		
1307	13.32	11.29	231	0.02	7.40	140		
1310	13.30	11.33	231	0.01	7.41	135		
1313	13.26	11.34	230	0.00	7.42	133		

Observations (color, odor, anomalies, etc)
START PURGE

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

SAMPLER: SAM ADDINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: MW-14
Sample ID: MW-14
Date: 10/4/11
Weather: Cloudy

84.30 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
Start: 1040
Grundfos: 200

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.
1042	84.55	13.81	300	0.19	6.91	121		
1045	84.55	14.40	283	0.11	6.87	112		
1048	84.54	14.44	272	0.07	6.86	112		
1051	84.50	14.56	267	0.04	6.85	112		
1054	84.54	14.63	264	0.06	6.85	112		
1057	84.55	14.65	265	0.06	6.85	112		

Observations (color, odor, anomalies, etc)

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

SAMPLER: SAM ADLINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: ~~MW~~ SW-01
Sample ID: SW-01
Date: 10/4/11
Weather: OVERCAST

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: (Grab) Bail
Other: Deploy Dedicated

Notes:

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

Sample Containers:
(1000 ml Poly) 500 ml Poly 250 ml Poly 125 ml Poly
(500 ml HNO3 x2) (500 ml H2SO4 x2) (40 ml VOA x3 ~~x8~~) 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1050	–	10.48	253	2.82	7.76	-24.4	–	

Observations (color, odor, anomalies, etc)

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

SAMPLER: SAM ADLINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: SW-04
Sample ID: SW-04
Date: 10/4/11
Weather: OVERCAST

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: (Grab) Bail
Other: Deploy Dedicated

Notes:

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1030	–	11.25	447	3.04	7.04	-27	–	

Observations (color, odor, anomalies, etc)

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

SAMPLER: SAM ARLINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: SW-06
Sample ID: SW-06
Date: 10/4/11
Weather: OVERCAST

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: (Grab) Bail
Other: Deploy Dedicated

Notes:

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1000	—	11.81	161	3.23	7.13	-10.9	—	

Observations (color, odor, anomalies, etc)

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

SAMPLER: SAM ARLINGTON
Printed Name

Signature

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

Groundwater Sampling Data Sheet

Project #: 04211017.00
Site: Hansville Landfill
Well ID: SW-07
Sample ID:
Date: 10/4/11
Weather:

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: (Grab) Bail
Other: Deploy Dedicated

Notes:

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

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

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0915	—	11.57	168	2.51	~~5.97~~ 6.35	71.2	—	

Observations (color, odor, anomalies, etc)

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

SAMPLER: SAM ADLINGTON
Printed Name

Signature

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	10/4/11					
Time	0805	0808	0810	0813		
Weather (sky or precip, temp)	OVERCAST					
Barometric Pressure (*)						
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	447	7.12	3.88	8.91		
Post Cal Reading	445	7.00	4.01	—		
Descrepancy	N	N	N	N		
Calib. Successful?	Y	Y	Y	Y		
Calibration by	SA	→	→	→		
Instrument Type, ID	YSI 556 ~~MP20~~	~~MP20~~	~~MP20~~	~~MP20~~	HACH 2100P	
Calibration Location	mw-7					

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

SCS ENGINEERS

GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	10/4/11					
Time	805					
Weather (sky or precip, temp)	Cloudy					
Barometric Pressure (*)						
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	.480	7.01	4.02	4.46		
Post Cal Reading	.445	7.00	4.01			
Descrepancy	.480 - .438					
Calib. Successful?	Y	→	→	→		
Calibration by	CC	→	→			
Instrument Type, ID	MP20	MP20	MP20	MP20	HACH 2100P	
Calibration Location	mw - 7	→	→			

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

Appendix F

Fourth Quarter (October) 2011 Laboratory Data Reports

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-21070-1

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
10/28/2011 9:47 AM

Betsy A Sara
Project Manager II
betsy.sara@testamericainc.com
10/28/2011
Revision: 1

cc: Mr. Greg Helland
Mr. Charles Luckie

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

The Lab Certification ID# is E87667.

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

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

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

CASE NARRATIVE

Client: SCS Engineers

Project: Hansville Landfill

Report Number: 280-21070-1

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 10/05/2011; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 2.6C, 3.0C and 2.8C.

One of six VOA vials for samples SW-04, SW-07, SW-06 and SW-01 were received without labels. These unlabeled vials arrived in bubble wrap with labeled vials and were associated accordingly. The client was notified 10/05/2011.

Holding Times

All holding times were within established control limits.

Method Blanks

Vinyl Chloride Method 8260B SIM, Total Alkalinity and Bicarbonate Alkalinity Method 23210B were detected in the Method Blanks below the project established reporting limits. No corrective action is taken for any values in Method Blanks that are below the requested reporting limits. The Method Blank data are included at the end of this report.

All other 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-07 and MW-05 were selected to fulfill the laboratory batch quality control requirements for Method 350.1. Analysis of the laboratory generated MS/MSD for these samples 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 analyses for Dissolved Arsenic Method 200.8 were performed by ARI. Their address and phone number are:
Analytical Resources, Inc.
4611 S. 134th Place
Tukwila, WA 98168-3240
206-695-6200 phone

Report Revision

This submission was revised to include a smaller version of the subcontract report from ARL. The original sub report was 17MB. Results have not changed, only the size of the report.

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-21070-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-21070-51	**MW-07**					
Sulfate		6.4		1.0	mg/L	300.0
Nitrate as N		1.2		0.50	mg/L	300.0
Chloride		2.7		1.0	mg/L	9251
Total Alkalinity		150	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		150	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.5		1.0	mg/L	SM 5310B
280-21070-52	**SW-07**					
Sulfate		6.2		1.0	mg/L	300.0
Nitrate as N		0.67		0.50	mg/L	300.0
Chloride		4.6		1.0	mg/L	9251
Total Alkalinity		64	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		64	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		9.0		1.0	mg/L	SM 5310B
Dissolved						
Manganese		11		1.0	ug/L	6020
280-21070-53	**SW-06**					
Sulfate		4.3		1.0	mg/L	300.0
Ammonia as N		0.045		0.030	mg/L	350.1
Chloride		5.3		1.0	mg/L	9251
Total Alkalinity		79	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		79	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		10		1.0	mg/L	SM 5310B
Dissolved						
Manganese		340		1.0	ug/L	6020
280-21070-54	**MW-06**					
Vinyl chloride		0.19	B	0.020	ug/L	8260B SIM
Sulfate		26		1.0	mg/L	300.0
Nitrate as N		1.2		0.50	mg/L	300.0
Nitrite as N		0.070	J	0.50	mg/L	300.0
Ammonia as N		0.039		0.030	mg/L	350.1
Chloride		18		1.0	mg/L	9251
Total Alkalinity		200	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		200	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.1		1.0	mg/L	SM 5310B
Dissolved						
Manganese		410		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-21070-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-21070-55	**MW-20DD**					
Vinyl chloride		0.18	B	0.020	ug/L	8260B SIM
Sulfate		25		1.0	mg/L	300.0
Nitrate as N		1.1		0.50	mg/L	300.0
Nitrite as N		0.064	J	0.50	mg/L	300.0
Ammonia as N		0.030		0.030	mg/L	350.1
Chloride		17		1.0	mg/L	9251
Total Alkalinity		180	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		180	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.0		1.0	mg/L	SM 5310B
Dissolved						
Manganese		410		1.0	ug/L	6020
280-21070-56	**SW-04**					
Sulfate		27		1.0	mg/L	300.0
Nitrate as N		1.1		0.50	mg/L	300.0
Ammonia as N		0.064		0.030	mg/L	350.1
Chloride		20		1.0	mg/L	9251
Total Alkalinity		200	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		200	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		5.2		1.0	mg/L	SM 5310B
Dissolved						
Manganese		72		1.0	ug/L	6020
280-21070-57	**SW-01**					
Sulfate		13		1.0	mg/L	300.0
Nitrate as N		2.3		0.50	mg/L	300.0
Ammonia as N		0.14		0.030	mg/L	350.1
Chloride		5.3		1.0	mg/L	9251
Total Alkalinity		99	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		99	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.8		1.0	mg/L	SM 5310B
Dissolved						
Manganese		0.60	J	1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers Job Number: 280-21070-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-21070-58	**MW-14**					
Vinyl chloride		0.27	B	0.020	ug/L	8260B SIM
Sulfate		18		1.0	mg/L	300.0
Ammonia as N		0.048		0.030	mg/L	350.1
Chloride		6.9		1.0	mg/L	9251
Total Alkalinity		140	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		140	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.2		1.0	mg/L	SM 5310B
Dissolved						
Manganese		2700		1.0	ug/L	6020
280-21070-59	**MW-05**					
Sulfate		9.5		1.0	mg/L	300.0
Nitrate as N		0.56		0.50	mg/L	300.0
Ammonia as N		0.037		0.030	mg/L	350.1
Chloride		4.0		1.0	mg/L	9251
Total Alkalinity		58	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		58	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		0.51	J	1.0	mg/L	SM 5310B
Dissolved						
Manganese		1.1		1.0	ug/L	6020
280-21070-60	**MW-13D**					
Sulfate		19		1.0	mg/L	300.0
Ammonia as N		0.023	J	0.030	mg/L	350.1
Chloride		8.4		1.0	mg/L	9251
Total Alkalinity		110	B	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		110	B	5.0	mg/L	SM 2320B
Total Organic Carbon - Average		0.59	J	1.0	mg/L	SM 5310B
Dissolved						
Manganese		57		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: SCS Engineers

Job Number: 280-21070-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-21070-61	**MW-12I**					
Vinyl chloride		0.24	B	0.020	ug/L	8260B SIM
Sulfate		7.4		1.0	mg/L	300.0
Ammonia as N		0.029	J	0.030	mg/L	350.1
Chloride		4.4		1.0	mg/L	9251
Total Alkalinity		100		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		100		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.6		1.0	mg/L	SM 5310B
Dissolved						
Manganese		63		1.0	ug/L	6020

METHOD SUMMARY

Client: SCS Engineers

Job Number: 280-21070-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Metals (ICP/MS)	TAL DEN	SW846 6020	
Preparation, Total Recoverable or Dissolved Metals			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: 280-21070-1

Method	Analyst	Analyst ID
SW846 8260B SIM	Brandt, Todd R	TRB
SW846 6020	Trudell, Lynn-Anne	LT
MCAWW 300.0	Kudla, Ewa	EK
MCAWW 350.1	Scott, Samantha J	SJS
SW846 9251	Kilker, Lorelei M	LMK
SM SM 2320B	Allen, Andrew J	AJA
SM SM 5310B	Yates, George E	GEY

SAMPLE SUMMARY

Client: SCS Engineers

Job Number: 280-21070-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-21070-51	MW-07	Water	10/04/2011 0900	10/05/2011 1000
280-21070-52	SW-07	Water	10/04/2011 0915	10/05/2011 1000
280-21070-53	SW-06	Water	10/04/2011 1000	10/05/2011 1000
280-21070-54	MW-06	Water	10/04/2011 1004	10/05/2011 1000
280-21070-55	MW-20DD	Water	10/04/2011 1004	10/05/2011 1000
280-21070-56	SW-04	Water	10/04/2011 1030	10/05/2011 1000
280-21070-57	SW-01	Water	10/04/2011 1050	10/05/2011 1000
280-21070-58	MW-14	Water	10/04/2011 1057	10/05/2011 1000
280-21070-59	MW-05	Water	10/04/2011 1224	10/05/2011 1000
280-21070-60	MW-13D	Water	10/04/2011 1313	10/05/2011 1000
280-21070-61	MW-12I	Water	10/04/2011 1356	10/05/2011 1000
280-21070-62TB	TRIP BLANK	Water	10/04/2011 0900	10/05/2011 1000

SAMPLE RESULTS

Client: SCS Engineers Job Number: 280-21070-1

Client Sample ID: **MW-07**

Lab Sample ID: 280-21070-51 Date Sampled: 10/04/2011 0900
Client Matrix: Water Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2024.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1123			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1123				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-07**

Lab Sample ID: 280-21070-52
Client Matrix: Water

Date Sampled: 10/04/2011 0915
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2025.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1146			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1146				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-06**

Lab Sample ID: 280-21070-53
Client Matrix: Water

Date Sampled: 10/04/2011 1000
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2026.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1210			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1210				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **MW-06**

Lab Sample ID: 280-21070-54
Client Matrix: Water

Date Sampled: 10/04/2011 1004
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2027.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1234			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1234				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	0.19	B	0.0040	0.020

Client: SCS Engineers Job Number: 280-21070-1

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

Lab Sample ID: 280-21070-55 Date Sampled: 10/04/2011 1004
Client Matrix: Water Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2028.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1258			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1258				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	0.18	B	0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-04**

Lab Sample ID: 280-21070-56
Client Matrix: Water

Date Sampled: 10/04/2011 1030
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2029.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1322			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1322				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-01**

Lab Sample ID: 280-21070-57
Client Matrix: Water

Date Sampled: 10/04/2011 1050
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2030.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1346			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1346				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **MW-14**

Lab Sample ID: 280-21070-58
Client Matrix: Water

Date Sampled: 10/04/2011 1057
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2031.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1409			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1409				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	0.27	B	0.0040	0.020

Client: SCS Engineers Job Number: 280-21070-1

Client Sample ID: **MW-05**

Lab Sample ID: 280-21070-59 Date Sampled: 10/04/2011 1224
Client Matrix: Water Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2032.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1433			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1433				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers

Job Number: 280-21070-1

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

Lab Sample ID: 280-21070-60
Client Matrix: Water

Date Sampled: 10/04/2011 1313
Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2033.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1456			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1456				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers Job Number: 280-21070-1

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

Lab Sample ID: 280-21070-61 Date Sampled: 10/04/2011 1356
Client Matrix: Water Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2034.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1520			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1520				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	0.24	B	0.0040	0.020

Client: SCS Engineers | Job Number: 280-21070-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 280-21070-62TB | Date Sampled: 10/04/2011 0900
Client Matrix: Water | Date Received: 10/05/2011 1000

8260B SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B SIM	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	J2035.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1544			Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1544				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl chloride	ND		0.0040	0.020

Client: SCS Engineers Job Number: 280-21070-1

Client Sample ID: **MW-07**

Lab Sample ID: 280-21070-51 Date Sampled: 10/04/2011 0900
Client Matrix: Water Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	041SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1804			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	ND		0.31	1.0

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-07**

Lab Sample ID: 280-21070-52
Client Matrix: Water

Date Sampled: 10/04/2011 0915
Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	042SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1808			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	11		0.31	1.0

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-06**

Lab Sample ID: 280-21070-53
Client Matrix: Water

Date Sampled: 10/04/2011 1000
Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	045SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1818			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	340		0.31	1.0

Client: SCS Engineers Job Number: 280-21070-1

Client Sample ID: **MW-06**

Lab Sample ID: 280-21070-54 Date Sampled: 10/04/2011 1004
Client Matrix: Water Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	046SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1821			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	410		0.31	1.0

Client: SCS Engineers Job Number: 280-21070-1

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

Lab Sample ID: 280-21070-55 Date Sampled: 10/04/2011 1004
Client Matrix: Water Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	047SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1824			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	410		0.31	1.0

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-04**

Lab Sample ID: 280-21070-56
Client Matrix: Water

Date Sampled: 10/04/2011 1030
Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	048SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1827			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	72		0.31	1.0

Client: SCS Engineers

Job Number: 280-21070-1

Client Sample ID: **SW-01**

Lab Sample ID: 280-21070-57
Client Matrix: Water

Date Sampled: 10/04/2011 1050
Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	049SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1831			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	0.60	J	0.31	1.0

Client: SCS Engineers Job Number: 280-21070-1

Client Sample ID: **MW-14**

Lab Sample ID: 280-21070-58 Date Sampled: 10/04/2011 1057
Client Matrix: Water Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	050SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1834			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	2700		0.31	1.0

Client: SCS Engineers Job Number: 280-21070-1

Client Sample ID: **MW-05**

Lab Sample ID: 280-21070-59 Date Sampled: 10/04/2011 1224
Client Matrix: Water Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	051SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1837			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	1.1		0.31	1.0

Client: SCS Engineers Job Number: 280-21070-1

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

Lab Sample ID: 280-21070-60 Date Sampled: 10/04/2011 1313
Client Matrix: Water Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	052SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1841			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	57		0.31	1.0

Client: SCS Engineers

Job Number: 280-21070-1

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

Lab Sample ID: 280-21070-61
Client Matrix: Water

Date Sampled: 10/04/2011 1356
Date Received: 10/05/2011 1000

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-90193	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-89594	Lab File ID:	053SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1844			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Manganese	63		0.31	1.0

General Chemistry

Client Sample ID: **MW-07**

Lab Sample ID: 280-21070-51 Date Sampled: 10/04/2011 0900
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	1.2		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1629						
Sulfate	6.4		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1629						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1629						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1629						
Ammonia as N	ND		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1145						
Chloride	2.7		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0927						
Total Alkalinity	150	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1227						
Bicarbonate Alkalinity	150	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1227						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1227						
Total Organic Carbon - Average	1.5		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0620						

General Chemistry

Client Sample ID: **SW-07**

Lab Sample ID: 280-21070-52 Date Sampled: 10/04/2011 0915
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	0.67		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1736						
Sulfate	6.2		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1736						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1736						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1736						
Ammonia as N	ND		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1150						
Chloride	4.6		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0931						
Total Alkalinity	64	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1235						
Bicarbonate Alkalinity	64	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1235						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1235						
Total Organic Carbon - Average	9.0		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0636						

General Chemistry

Client Sample ID: **SW-06**

Lab Sample ID: 280-21070-53 Date Sampled: 10/04/2011 1000
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	ND		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1753						
Sulfate	4.3		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1753						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1753						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1753						
Ammonia as N	0.045		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1151						
Chloride	5.3		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0932						
Total Alkalinity	79	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1244						
Bicarbonate Alkalinity	79	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1244						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1244						
Total Organic Carbon - Average	10		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0654						

General Chemistry

Client Sample ID: **MW-06**

Lab Sample ID: 280-21070-54 Date Sampled: 10/04/2011 1004
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	1.2		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1810						
Sulfate	26		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1810						
Nitrite as N	0.070	J	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1810						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1810						
Ammonia as N	0.039		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1153						
Chloride	18		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0933						
Total Alkalinity	200	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1254						
Bicarbonate Alkalinity	200	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1254						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1254						
Total Organic Carbon - Average	1.1		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0711						

General Chemistry

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

Lab Sample ID: 280-21070-55 Date Sampled: 10/04/2011 1004
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	1.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1826						
Sulfate	25		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1826						
Nitrite as N	0.064	J	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1826						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1826						
Ammonia as N	0.030		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1154						
Chloride	17		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0934						
Total Alkalinity	180	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1301						
Bicarbonate Alkalinity	180	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1301						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1301						
Total Organic Carbon - Average	1.0		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0726						

General Chemistry

Client Sample ID: **SW-04**

Lab Sample ID: 280-21070-56 Date Sampled: 10/04/2011 1030
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	1.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1843						
Sulfate	27		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1843						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1843						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1843						
Ammonia as N	0.064		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1205						
Chloride	20		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0942						
Total Alkalinity	200	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1309						
Bicarbonate Alkalinity	200	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1309						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1309						
Total Organic Carbon - Average	5.2		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0742						

General Chemistry

Client Sample ID: **SW-01**

Lab Sample ID: 280-21070-57 Date Sampled: 10/04/2011 1050
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	2.3		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1900						
Sulfate	13		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 1900						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1900						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 1900						
Ammonia as N	0.14		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1206						
Chloride	5.3		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0944						
Total Alkalinity	99	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1316						
Bicarbonate Alkalinity	99	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1316						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1316						
Total Organic Carbon - Average	1.8		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0759						

General Chemistry

Client Sample ID: **MW-14**

Lab Sample ID: 280-21070-58 Date Sampled: 10/04/2011 1057

Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	ND		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2024						
Sulfate	18		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 2024						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2024						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2024						
Ammonia as N	0.048		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1208						
Chloride	6.9		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0945						
Total Alkalinity	140	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1325						
Bicarbonate Alkalinity	140	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1325						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1325						
Total Organic Carbon - Average	1.2		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0817						

General Chemistry

Client Sample ID: **MW-05**

Lab Sample ID: 280-21070-59 Date Sampled: 10/04/2011 1224
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	0.56		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2041						
Sulfate	9.5		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 2041						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2041						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2041						
Ammonia as N	0.037		mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1209						
Chloride	4.0		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0946						
Total Alkalinity	58	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1333						
Bicarbonate Alkalinity	58	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1333						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1333						
Total Organic Carbon - Average	0.51	J	mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0832						

General Chemistry

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

Lab Sample ID: 280-21070-60 Date Sampled: 10/04/2011 1313
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	ND		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2058						
Sulfate	19		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 2058						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2058						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2058						
Ammonia as N	0.023	J	mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1214						
Chloride	8.4		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0947						
Total Alkalinity	110	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1342						
Bicarbonate Alkalinity	110	B	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1342						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1342						
Total Organic Carbon - Average	0.59	J	mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0847						

General Chemistry

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

Lab Sample ID: 280-21070-61 Date Sampled: 10/04/2011 1356
Client Matrix: Water Date Received: 10/05/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate as N	ND		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2114						
Sulfate	7.4		mg/L	0.23	1.0	1.0	300.0
Analysis Batch: 280-89647	Analysis Date: 10/05/2011 2114						
Nitrite as N	ND		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2114						
Orthophosphate as P	ND		mg/L	0.19	0.50	1.0	300.0
Analysis Batch: 280-89646	Analysis Date: 10/05/2011 2114						
Ammonia as N	0.029	J	mg/L	0.022	0.030	1.0	350.1
Analysis Batch: 280-91038	Analysis Date: 10/13/2011 1215						
Chloride	4.4		mg/L	1.0	1.0	1.0	9251
Analysis Batch: 280-90995	Analysis Date: 10/13/2011 0948						
Total Alkalinity	100		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1438						
Bicarbonate Alkalinity	100		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1438						
Carbonate Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-90635	Analysis Date: 10/11/2011 1438						
Total Organic Carbon - Average	2.6		mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-90740	Analysis Date: 10/12/2011 0937						

DATA REPORTING QUALIFIERS

Client: SCS Engineers Job Number: 280-21070-1

Lab Section	Qualifier	Description
GC/MS VOA		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Metals		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
General Chemistry		
	B	Compound was found in the blank and sample.
	F	MS or MSD exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

QUALITY CONTROL RESULTS

Client: SCS Engineers Job Number: 280-21070-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:480-34665					
LCS 480-34665/2	Lab Control Sample	T	Water	8260B SIM	
MB 480-34665/3	Method Blank	T	Water	8260B SIM	
280-21070-51	MW-07	T	Water	8260B SIM	
280-21070-52	SW-07	T	Water	8260B SIM	
280-21070-53	SW-06	T	Water	8260B SIM	
280-21070-54	MW-06	T	Water	8260B SIM	
280-21070-55	MW-20DD	T	Water	8260B SIM	
280-21070-56	SW-04	T	Water	8260B SIM	
280-21070-57	SW-01	T	Water	8260B SIM	
280-21070-58	MW-14	T	Water	8260B SIM	
280-21070-59	MW-05	T	Water	8260B SIM	
280-21070-60	MW-13D	T	Water	8260B SIM	
280-21070-61	MW-12I	T	Water	8260B SIM	
280-21070-62TB	TRIP BLANK	T	Water	8260B SIM	

Report Basis
T = Total

Client: SCS Engineers

Job Number: 280-21070-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-89594					
LCS 280-89594/2-A	Lab Control Sample	R	Water	3005A	
MB 280-89594/1-A	Method Blank	R	Water	3005A	
280-21070-51	MW-07	D	Water	3005A	
280-21070-52	SW-07	D	Water	3005A	
280-21070-53	SW-06	D	Water	3005A	
280-21070-54	MW-06	D	Water	3005A	
280-21070-55	MW-20DD	D	Water	3005A	
280-21070-56	SW-04	D	Water	3005A	
280-21070-57	SW-01	D	Water	3005A	
280-21070-58	MW-14	D	Water	3005A	
280-21070-59	MW-05	D	Water	3005A	
280-21070-60	MW-13D	D	Water	3005A	
280-21070-61	MW-12I	D	Water	3005A	
280-21072-M-3-I MS	Matrix Spike	D	Water	3005A	
280-21072-M-3-J MSD	Matrix Spike Duplicate	D	Water	3005A	
Analysis Batch:280-90193					
LCS 280-89594/2-A	Lab Control Sample	R	Water	6020	280-89594
MB 280-89594/1-A	Method Blank	R	Water	6020	280-89594
280-21070-51	MW-07	D	Water	6020	280-89594
280-21070-52	SW-07	D	Water	6020	280-89594
280-21070-53	SW-06	D	Water	6020	280-89594
280-21070-54	MW-06	D	Water	6020	280-89594
280-21070-55	MW-20DD	D	Water	6020	280-89594
280-21070-56	SW-04	D	Water	6020	280-89594
280-21070-57	SW-01	D	Water	6020	280-89594
280-21070-58	MW-14	D	Water	6020	280-89594
280-21070-59	MW-05	D	Water	6020	280-89594
280-21070-60	MW-13D	D	Water	6020	280-89594
280-21070-61	MW-12I	D	Water	6020	280-89594
280-21072-M-3-I MS	Matrix Spike	D	Water	6020	280-89594
280-21072-M-3-J MSD	Matrix Spike Duplicate	D	Water	6020	280-89594

Report Basis

D = Dissolved

R = Total Recoverable

Client: SCS Engineers Job Number: 280-21070-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-89646					
LCS 280-89646/4	Lab Control Sample	T	Water	300.0	
LCSD 280-89646/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-89646/6	Method Blank	T	Water	300.0	
280-21070-51	MW-07	T	Water	300.0	
280-21070-51DU	Duplicate	T	Water	300.0	
280-21070-51MS	Matrix Spike	T	Water	300.0	
280-21070-51MSD	Matrix Spike Duplicate	T	Water	300.0	
280-21070-52	SW-07	T	Water	300.0	
280-21070-53	SW-06	T	Water	300.0	
280-21070-54	MW-06	T	Water	300.0	
280-21070-55	MW-20DD	T	Water	300.0	
280-21070-56	SW-04	T	Water	300.0	
280-21070-57	SW-01	T	Water	300.0	
280-21070-58	MW-14	T	Water	300.0	
280-21070-59	MW-05	T	Water	300.0	
280-21070-60	MW-13D	T	Water	300.0	
280-21070-61	MW-12I	T	Water	300.0	
280-21070-61DU	Duplicate	T	Water	300.0	
Analysis Batch:280-89647					
LCS 280-89647/4	Lab Control Sample	T	Water	300.0	
LCSD 280-89647/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-89647/6	Method Blank	T	Water	300.0	
280-21070-51	MW-07	T	Water	300.0	
280-21070-51DU	Duplicate	T	Water	300.0	
280-21070-51MS	Matrix Spike	T	Water	300.0	
280-21070-51MSD	Matrix Spike Duplicate	T	Water	300.0	
280-21070-52	SW-07	T	Water	300.0	
280-21070-53	SW-06	T	Water	300.0	
280-21070-54	MW-06	T	Water	300.0	
280-21070-55	MW-20DD	T	Water	300.0	
280-21070-56	SW-04	T	Water	300.0	
280-21070-57	SW-01	T	Water	300.0	
280-21070-58	MW-14	T	Water	300.0	
280-21070-59	MW-05	T	Water	300.0	
280-21070-60	MW-13D	T	Water	300.0	
280-21070-61	MW-12I	T	Water	300.0	
280-21070-61DU	Duplicate	T	Water	300.0	

Client: SCS Engineers Job Number: 280-21070-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-90635					
LCS 280-90635/31	Lab Control Sample	T	Water	SM 2320B	
LCS 280-90635/4	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-90635/32	Lab Control Sample Duplicate	T	Water	SM 2320B	
LCSD 280-90635/5	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-90635/33	Method Blank	T	Water	SM 2320B	
MB 280-90635/6	Method Blank	T	Water	SM 2320B	
280-21070-51	MW-07	T	Water	SM 2320B	
280-21070-52	SW-07	T	Water	SM 2320B	
280-21070-53	SW-06	T	Water	SM 2320B	
280-21070-54	MW-06	T	Water	SM 2320B	
280-21070-55	MW-20DD	T	Water	SM 2320B	
280-21070-56	SW-04	T	Water	SM 2320B	
280-21070-57	SW-01	T	Water	SM 2320B	
280-21070-58	MW-14	T	Water	SM 2320B	
280-21070-59	MW-05	T	Water	SM 2320B	
280-21070-60	MW-13D	T	Water	SM 2320B	
280-21070-61	MW-12I	T	Water	SM 2320B	
280-21070-61DU	Duplicate	T	Water	SM 2320B	
Analysis Batch:280-90740					
LCS 280-90740/20	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-90740/21	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-90740/22	Method Blank	T	Water	SM 5310B	
280-20788-B-1 MS	Matrix Spike	T	Water	SM 5310B	
280-20788-B-1 MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-21070-51	MW-07	T	Water	SM 5310B	
280-21070-52	SW-07	T	Water	SM 5310B	
280-21070-53	SW-06	T	Water	SM 5310B	
280-21070-54	MW-06	T	Water	SM 5310B	
280-21070-55	MW-20DD	T	Water	SM 5310B	
280-21070-56	SW-04	T	Water	SM 5310B	
280-21070-57	SW-01	T	Water	SM 5310B	
280-21070-58	MW-14	T	Water	SM 5310B	
280-21070-59	MW-05	T	Water	SM 5310B	
280-21070-60	MW-13D	T	Water	SM 5310B	
280-21070-61	MW-12I	T	Water	SM 5310B	

Client: SCS Engineers

Job Number: 280-21070-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-90995					
LCS 280-90995/19	Lab Control Sample	T	Water	9251	
LCSD 280-90995/20	Lab Control Sample Duplicate	T	Water	9251	
MB 280-90995/21	Method Blank	T	Water	9251	
280-21070-51	MW-07	T	Water	9251	
280-21070-51MS	Matrix Spike	T	Water	9251	
280-21070-51MSD	Matrix Spike Duplicate	T	Water	9251	
280-21070-52	SW-07	T	Water	9251	
280-21070-53	SW-06	T	Water	9251	
280-21070-54	MW-06	T	Water	9251	
280-21070-55	MW-20DD	T	Water	9251	
280-21070-56	SW-04	T	Water	9251	
280-21070-57	SW-01	T	Water	9251	
280-21070-58	MW-14	T	Water	9251	
280-21070-59	MW-05	T	Water	9251	
280-21070-60	MW-13D	T	Water	9251	
280-21070-61	MW-12I	T	Water	9251	
Analysis Batch:280-91038					
LCS 280-91038/85	Lab Control Sample	T	Water	350.1	
LCSD 280-91038/86	Lab Control Sample Duplicate	T	Water	350.1	
MB 280-91038/84	Method Blank	T	Water	350.1	
280-21070-51	MW-07	T	Water	350.1	
280-21070-51MS	Matrix Spike	T	Water	350.1	
280-21070-51MSD	Matrix Spike Duplicate	T	Water	350.1	
280-21070-52	SW-07	T	Water	350.1	
280-21070-53	SW-06	T	Water	350.1	
280-21070-54	MW-06	T	Water	350.1	
280-21070-55	MW-20DD	T	Water	350.1	
280-21070-56	SW-04	T	Water	350.1	
280-21070-57	SW-01	T	Water	350.1	
280-21070-58	MW-14	T	Water	350.1	
280-21070-59	MW-05	T	Water	350.1	
280-21070-59MS	Matrix Spike	T	Water	350.1	
280-21070-59MSD	Matrix Spike Duplicate	T	Water	350.1	
280-21070-60	MW-13D	T	Water	350.1	
280-21070-61	MW-12I	T	Water	350.1	

Report Basis

T = Total

Client: SCS Engineers

Job Number: 280-21070-1

Method Blank - Batch: 480-34665

Method: 8260B SIM
Preparation: 5030B

Lab Sample ID:	MB 480-34665/3	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J2023.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1049	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1049				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Vinyl chloride	0.0106	J	0.0040	0.020

Lab Control Sample - Batch: 480-34665

Method: 8260B SIM
Preparation: 5030B

Lab Sample ID:	LCS 480-34665/2	Analysis Batch:	480-34665	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J2022.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	10/10/2011 1025	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	10/10/2011 1025				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Vinyl chloride	0.200	0.203	101	60 - 140	

Method Blank - Batch: 280-89594

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-89594/1-A	Analysis Batch:	280-90193	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-89594	Lab File ID:	034BLNK.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1741	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Manganese	ND		0.31	1.0

Lab Control Sample - Batch: 280-89594

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-89594/2-A	Analysis Batch:	280-90193	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-89594	Lab File ID:	035_LCS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1744	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Manganese	40.0	40.0	100	85 - 117	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-89594

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-21072-M-3-I MS	Analysis Batch:	280-90193	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-89594	Lab File ID:	038SMPL.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1754			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				
Leach Date:	N/A				

MSD Lab Sample ID:	280-21072-M-3-J MSD	Analysis Batch:	280-90193	Instrument ID:	MT_077
Client Matrix:	Water	Prep Batch:	280-89594	Lab File ID:	039SMPL.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/07/2011 1758			Final Weight/Volume:	50 mL
Prep Date:	10/07/2011 0530				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Manganese	114	98	85 - 117	4	20		

Client: SCS Engineers

Job Number: 280-21070-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-89594

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-21072-M-3-I MS	Units: ug/L	MSD Lab Sample ID:	280-21072-M-3-J MSD	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/07/2011 1754		Analysis Date:	10/07/2011 1758	
Prep Date:	10/07/2011 0530		Prep Date:	10/07/2011 0530	
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	110	40.0	40.0	154	147

Client: SCS Engineers

Job Number: 280-21070-1

Method Blank - Batch: 280-89646

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-89646/6	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1612	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Nitrate as N	ND		0.042	0.50
Nitrite as N	ND		0.049	0.50
Orthophosphate as P	ND		0.19	0.50

Method Reporting Limit Check - Batch: 280-89646

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-89646/3	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1522	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	0.188	94	50 - 150	J
Nitrite as N	0.200	0.195	98	50 - 150	J
Orthophosphate as P	0.200	0.251	126	50 - 150	J

Client: SCS Engineers Job Number: 280-21070-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-89646

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-89646/4	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1538	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-89646/5	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1555	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Nitrate as N	99	99	90 - 110	0	10		
Nitrite as N	103	103	90 - 110	0	10		
Orthophosphate as P	98	106	90 - 110	8	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-89646

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-89646/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-89646/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/05/2011 1538			Analysis Date:	10/05/2011 1555
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	4.97	4.97
Nitrite as N	5.00	5.00	5.17	5.16
Orthophosphate as P	5.00	5.00	4.90	5.30

Client: SCS Engineers Job Number: 280-21070-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-89646

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	118.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1702			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-21070-51	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	119.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1719			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	101	102	80 - 120	1	20		
Nitrite as N	104	105	80 - 120	1	20		
Orthophosphate as P	102	105	80 - 120	3	20		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-89646

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Units:	mg/L	MSD Lab Sample ID:	280-21070-51
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/05/2011 1702			Analysis Date:	10/05/2011 1719
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	1.2	5.00	5.00	6.22	6.27
Nitrite as N	ND	5.00	5.00	5.19	5.23
Orthophosphate as P	ND	5.00	5.00	5.08	5.25

Client: SCS Engineers Job Number: 280-21070-1

Duplicate - Batch: 280-89646

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-21070-51	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	117.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1646	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	1.2	1.20	1	15	
Nitrite as N	ND	ND	NC	15	
Orthophosphate as P	ND	ND	NC	15	

Duplicate - Batch: 280-89646

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-21070-61	Analysis Batch:	280-89646	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	132.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 2131	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

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

Client: SCS Engineers Job Number: 280-21070-1

Method Blank - Batch: 280-89647

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-89647/6	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1612	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Sulfate	ND		0.23	1.0

Method Reporting Limit Check - Batch: 280-89647

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-89647/3	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1522	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	1.09	109	50 - 150	J

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-89647

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-89647/4	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	113.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1538	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-89647/5	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1555	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Sulfate	101	102	90 - 110	0	10		

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-89647

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-89647/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-89647/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/05/2011 1538			Analysis Date:	10/05/2011 1555
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	25.4	25.5

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-89647

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	118.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1702			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-21070-51	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	119.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1719			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

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

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-89647

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Units:	mg/L	MSD Lab Sample ID:	280-21070-51
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/05/2011 1702			Analysis Date:	10/05/2011 1719
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	6.4	25.0	25.0	31.9	32.2

Client: SCS Engineers

Job Number: 280-21070-1

Duplicate - Batch: 280-89647

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-21070-51	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	117.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 1646	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	6.4	6.38	0.3	15	

Duplicate - Batch: 280-89647

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-21070-61	Analysis Batch:	280-89647	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	132.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/05/2011 2131	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	7.4	7.37	0.05	15	

Client: SCS Engineers Job Number: 280-21070-1

Method Blank - Batch: 280-91038

Method: 350.1
Preparation: N/A

Lab Sample ID:	MB 280-91038/84	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/13/2011 1141	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Ammonia as N	ND		0.022	0.030

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-91038

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-91038/85	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/13/2011 1142	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-91038/86	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/13/2011 1144	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	104	105	90 - 110	1	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-91038

Method: 350.1
Preparation: N/A

LCS Lab Sample ID:	LCS 280-91038/85	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-91038/86
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/13/2011 1142			Analysis Date:	10/13/2011 1144
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	5.00	5.00	5.20	5.25

Client: SCS Engineers

Job Number: 280-21070-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-91038

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/13/2011 1147			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-21070-51	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/13/2011 1148			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
Ammonia as N	127	127	90 - 110	0	20	F	F

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-91038

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-21070-59	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/13/2011 1211			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-21070-59	Analysis Batch:	280-91038	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1013NXNB
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/13/2011 1212			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
Ammonia as N	129	129	90 - 110	0	20	F	F

Client: SCS Engineers Job Number: 280-21070-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-91038

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Units: mg/L	MSD Lab Sample ID:	280-21070-51	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/13/2011 1147		Analysis Date:	10/13/2011 1148	
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	4.00	4.00	5.06	F	5.08	F

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-91038

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-21070-59	Units: mg/L	MSD Lab Sample ID:	280-21070-59	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/13/2011 1211		Analysis Date:	10/13/2011 1212	
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	0.037	4.00	4.00	5.20	F	5.18	F

Client: SCS Engineers Job Number: 280-21070-1

Method Blank - Batch: 280-90995

Method: 9251
Preparation: N/A

Lab Sample ID:	MB 280-90995/21	Analysis Batch:	280-90995	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL1013B.
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/13/2011 0926	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Chloride	ND		1.0	1.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-90995

Method: 9251
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90995/19	Analysis Batch:	280-90995	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL1013B.
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/13/2011 0924	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-90995/20	Analysis Batch:	280-90995	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL1013B.
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/13/2011 0925	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chloride	97	94	90 - 110	3	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-90995

Method: 9251
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90995/19	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-90995/20
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/13/2011 0924			Analysis Date:	10/13/2011 0925
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	25.0	25.0	24.1	23.5

Client: SCS Engineers Job Number: 280-21070-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-90995

Method: 9251
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Analysis Batch:	280-90995	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL1013B.
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/13/2011 0928			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-21070-51	Analysis Batch:	280-90995	Instrument ID:	WC_Alp 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\CL1013B.
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/13/2011 0930			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	98	95	90 - 110	2	10		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-90995

Method: 9251
Preparation: N/A

MS Lab Sample ID:	280-21070-51	Units: mg/L		MSD Lab Sample ID:	280-21070-51
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/13/2011 0928			Analysis Date:	10/13/2011 0930
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	2.7	50.0	50.0	51.6	50.5

Method Blank - Batch: 280-90635 **Method: SM 2320B**
Preparation: N/A

Lab Sample ID:	MB 280-90635/6	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1022	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Alkalinity	1.24	J	1.1	5.0
Bicarbonate Alkalinity	1.24	J	1.1	5.0
Carbonate Alkalinity	ND		1.1	5.0

Method Blank - Batch: 280-90635 **Method: SM 2320B**
Preparation: N/A

Lab Sample ID:	MB 280-90635/33	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1430	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Alkalinity	ND		1.1	5.0
Bicarbonate Alkalinity	ND		1.1	5.0
Carbonate Alkalinity	ND		1.1	5.0

Client: SCS Engineers Job Number: 280-21070-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-90635

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90635/4	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1005	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-90635/5	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1014	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Alkalinity	101	107	90 - 110	5	10		

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-90635

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90635/31	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1411	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-90635/32	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1422	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Alkalinity	101	101	90 - 110	1	10		

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-90635

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90635/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-90635/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/11/2011 1005			Analysis Date:	10/11/2011 1014
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	202	213

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-90635

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90635/31	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-90635/32
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/11/2011 1411			Analysis Date:	10/11/2011 1422
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	203	201

Duplicate - Batch: 280-90635

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-21070-61	Analysis Batch:	280-90635	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	10/11/2011 1447	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	100	106	6	10	

Client: SCS Engineers Job Number: 280-21070-1

Method Blank - Batch: 280-90740

Method: SM 5310B
Preparation: N/A

Lab Sample ID:	MB 280-90740/22	Analysis Batch:	280-90740	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	10/12/2011 0358	Units:	mg/L	Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Organic Carbon - Average	ND		0.16	1.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-90740

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90740/20	Analysis Batch:	280-90740	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	10/12/2011 0320	Units:	mg/L	Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-90740/21	Analysis Batch:	280-90740	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	10/12/2011 0339	Units:	mg/L	Final Weight/Volume:	20 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		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-90740

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-90740/20	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-90740/21
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/12/2011 0320			Analysis Date:	10/12/2011 0339
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	24.9

Client: SCS Engineers Job Number: 280-21070-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-90740

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-20788-B-1 MS	Analysis Batch:	280-90740	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/12/2011 0432			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-20788-B-1 MSD	Analysis Batch:	280-90740	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	101111.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	10/12/2011 0450			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	98	98	88 - 112	0	15		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-90740

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-20788-B-1 MS	Units:	mg/L	MSD Lab Sample ID:	280-20788-B-1 MSD
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	10/12/2011 0432			Analysis Date:	10/12/2011 0450
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

	Sample		MS Spike	MSD Spike	MS	MSD
Analyte	Result/Qual		Amount	Amount	Result/Qual	Result/Qual
Total Organic Carbon - Average	0.93	J	25.0	25.0	25.4	25.4

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

Lab ID: 280-21070-51 **Client ID:** MW-07

Sample Date/Time: 10/04/2011 09:00 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-51		480-34665		10/10/2011 11:23	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-51		480-34665		10/10/2011 11:23	1	TAL BUF	TRB
P:3005A	280-21070-D-51-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-51-A		280-90193	280-89594	10/07/2011 18:04	1	TAL DEN	LT
A:300.0	280-21070-A-51		280-89646		10/05/2011 16:29	1	TAL DEN	EK
A:300.0	280-21070-A-51		280-89647		10/05/2011 16:29	1	TAL DEN	EK
A:350.1	280-21070-B-51		280-91038		10/13/2011 11:45	1	TAL DEN	SJS
A:9251	280-21070-A-51		280-90995		10/13/2011 09:27	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-51		280-90635		10/11/2011 12:27	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-51		280-90740		10/12/2011 06:20	1	TAL DEN	GEY

Lab ID: 280-21070-51 MS **Client ID:** MW-07

Sample Date/Time: 10/04/2011 09:00 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-21070-A-51 MS		280-89646		10/05/2011 17:02	1	TAL DEN	EK
A:300.0	280-21070-A-51 MS		280-89647		10/05/2011 17:02	1	TAL DEN	EK
A:350.1	280-21070-B-51 MS		280-91038		10/13/2011 11:47	1	TAL DEN	SJS
A:9251	280-21070-A-51 MS		280-90995		10/13/2011 09:28	1	TAL DEN	LMK

Lab ID: 280-21070-51 MSD **Client ID:** MW-07

Sample Date/Time: 10/04/2011 09:00 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-21070-A-51 MSD		280-89646		10/05/2011 17:19	1	TAL DEN	EK
A:300.0	280-21070-A-51 MSD		280-89647		10/05/2011 17:19	1	TAL DEN	EK
A:350.1	280-21070-B-51 MSD		280-91038		10/13/2011 11:48	1	TAL DEN	SJS
A:9251	280-21070-A-51 MSD		280-90995		10/13/2011 09:30	1	TAL DEN	LMK

Lab ID: 280-21070-51 DU **Client ID:** MW-07

Sample Date/Time: 10/04/2011 09:00 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-21070-A-51 DU		280-89646		10/05/2011 16:46	1	TAL DEN	EK
A:300.0	280-21070-A-51 DU		280-89647		10/05/2011 16:46	1	TAL DEN	EK

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

Lab ID: 280-21070-52 **Client ID: SW-07**

Sample Date/Time: 10/04/2011 09:15 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-52		480-34665		10/10/2011 11:46	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-52		480-34665		10/10/2011 11:46	1	TAL BUF	TRB
P:3005A	280-21070-D-52-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-52-A		280-90193	280-89594	10/07/2011 18:08	1	TAL DEN	LT
A:300.0	280-21070-A-52		280-89646		10/05/2011 17:36	1	TAL DEN	EK
A:300.0	280-21070-A-52		280-89647		10/05/2011 17:36	1	TAL DEN	EK
A:350.1	280-21070-B-52		280-91038		10/13/2011 11:50	1	TAL DEN	SJS
A:9251	280-21070-A-52		280-90995		10/13/2011 09:31	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-52		280-90635		10/11/2011 12:35	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-52		280-90740		10/12/2011 06:36	1	TAL DEN	GEY

Lab ID: 280-21070-53 **Client ID: SW-06**

Sample Date/Time: 10/04/2011 10:00 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-53		480-34665		10/10/2011 12:10	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-53		480-34665		10/10/2011 12:10	1	TAL BUF	TRB
P:3005A	280-21070-D-53-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-53-A		280-90193	280-89594	10/07/2011 18:18	1	TAL DEN	LT
A:300.0	280-21070-A-53		280-89646		10/05/2011 17:53	1	TAL DEN	EK
A:300.0	280-21070-A-53		280-89647		10/05/2011 17:53	1	TAL DEN	EK
A:350.1	280-21070-B-53		280-91038		10/13/2011 11:51	1	TAL DEN	SJS
A:9251	280-21070-A-53		280-90995		10/13/2011 09:32	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-53		280-90635		10/11/2011 12:44	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-53		280-90740		10/12/2011 06:54	1	TAL DEN	GEY

Lab ID: 280-21070-54 **Client ID: MW-06**

Sample Date/Time: 10/04/2011 10:04 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-54		480-34665		10/10/2011 12:34	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-54		480-34665		10/10/2011 12:34	1	TAL BUF	TRB
P:3005A	280-21070-D-54-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-54-A		280-90193	280-89594	10/07/2011 18:21	1	TAL DEN	LT
A:300.0	280-21070-A-54		280-89646		10/05/2011 18:10	1	TAL DEN	EK
A:300.0	280-21070-A-54		280-89647		10/05/2011 18:10	1	TAL DEN	EK
A:350.1	280-21070-B-54		280-91038		10/13/2011 11:53	1	TAL DEN	SJS
A:9251	280-21070-A-54		280-90995		10/13/2011 09:33	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-54		280-90635		10/11/2011 12:54	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-54		280-90740		10/12/2011 07:11	1	TAL DEN	GEY

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

Lab ID: 280-21070-55 **Client ID: MW-20DD**

Sample Date/Time: 10/04/2011 10:04 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-55		480-34665		10/10/2011 12:58	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-55		480-34665		10/10/2011 12:58	1	TAL BUF	TRB
P:3005A	280-21070-D-55-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-55-A		280-90193	280-89594	10/07/2011 18:24	1	TAL DEN	LT
A:300.0	280-21070-A-55		280-89646		10/05/2011 18:26	1	TAL DEN	EK
A:300.0	280-21070-A-55		280-89647		10/05/2011 18:26	1	TAL DEN	EK
A:350.1	280-21070-C-55		280-91038		10/13/2011 11:54	1	TAL DEN	SJS
A:9251	280-21070-A-55		280-90995		10/13/2011 09:34	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-55		280-90635		10/11/2011 13:01	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-55		280-90740		10/12/2011 07:26	1	TAL DEN	GEY

Lab ID: 280-21070-56 **Client ID: SW-04**

Sample Date/Time: 10/04/2011 10:30 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-56		480-34665		10/10/2011 13:22	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-56		480-34665		10/10/2011 13:22	1	TAL BUF	TRB
P:3005A	280-21070-D-56-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-56-A		280-90193	280-89594	10/07/2011 18:27	1	TAL DEN	LT
A:300.0	280-21070-A-56		280-89646		10/05/2011 18:43	1	TAL DEN	EK
A:300.0	280-21070-A-56		280-89647		10/05/2011 18:43	1	TAL DEN	EK
A:350.1	280-21070-C-56		280-91038		10/13/2011 12:05	1	TAL DEN	SJS
A:9251	280-21070-A-56		280-90995		10/13/2011 09:42	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-56		280-90635		10/11/2011 13:09	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-56		280-90740		10/12/2011 07:42	1	TAL DEN	GEY

Lab ID: 280-21070-57 **Client ID: SW-01**

Sample Date/Time: 10/04/2011 10:50 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-57		480-34665		10/10/2011 13:46	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-57		480-34665		10/10/2011 13:46	1	TAL BUF	TRB
P:3005A	280-21070-D-57-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-57-A		280-90193	280-89594	10/07/2011 18:31	1	TAL DEN	LT
A:300.0	280-21070-A-57		280-89646		10/05/2011 19:00	1	TAL DEN	EK
A:300.0	280-21070-A-57		280-89647		10/05/2011 19:00	1	TAL DEN	EK
A:350.1	280-21070-C-57		280-91038		10/13/2011 12:06	1	TAL DEN	SJS
A:9251	280-21070-A-57		280-90995		10/13/2011 09:44	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-57		280-90635		10/11/2011 13:16	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-57		280-90740		10/12/2011 07:59	1	TAL DEN	GEY

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

Lab ID: 280-21070-58 **Client ID: MW-14**

Sample Date/Time: 10/04/2011 10:57 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-58		480-34665		10/10/2011 14:09	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-58		480-34665		10/10/2011 14:09	1	TAL BUF	TRB
P:3005A	280-21070-D-58-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-58-A		280-90193	280-89594	10/07/2011 18:34	1	TAL DEN	LT
A:300.0	280-21070-A-58		280-89646		10/05/2011 20:24	1	TAL DEN	EK
A:300.0	280-21070-A-58		280-89647		10/05/2011 20:24	1	TAL DEN	EK
A:350.1	280-21070-B-58		280-91038		10/13/2011 12:08	1	TAL DEN	SJS
A:9251	280-21070-A-58		280-90995		10/13/2011 09:45	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-58		280-90635		10/11/2011 13:25	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-58		280-90740		10/12/2011 08:17	1	TAL DEN	GEY

Lab ID: 280-21070-59 **Client ID: MW-05**

Sample Date/Time: 10/04/2011 12:24 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-59		480-34665		10/10/2011 14:33	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-59		480-34665		10/10/2011 14:33	1	TAL BUF	TRB
P:3005A	280-21070-D-59-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-59-A		280-90193	280-89594	10/07/2011 18:37	1	TAL DEN	LT
A:300.0	280-21070-A-59		280-89646		10/05/2011 20:41	1	TAL DEN	EK
A:300.0	280-21070-A-59		280-89647		10/05/2011 20:41	1	TAL DEN	EK
A:350.1	280-21070-B-59		280-91038		10/13/2011 12:09	1	TAL DEN	SJS
A:9251	280-21070-A-59		280-90995		10/13/2011 09:46	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-59		280-90635		10/11/2011 13:33	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-59		280-90740		10/12/2011 08:32	1	TAL DEN	GEY

Lab ID: 280-21070-59 MS **Client ID: MW-05**

Sample Date/Time: 10/04/2011 12:24 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-21070-B-59 MS		280-91038		10/13/2011 12:11	1	TAL DEN	SJS

Lab ID: 280-21070-59 MSD **Client ID: MW-05**

Sample Date/Time: 10/04/2011 12:24 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:350.1	280-21070-B-59 MSD		280-91038		10/13/2011 12:12	1	TAL DEN	SJS

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

Lab ID: 280-21070-60 **Client ID: MW-13D**

Sample Date/Time: 10/04/2011 13:13 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-60		480-34665		10/10/2011 14:56	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-60		480-34665		10/10/2011 14:56	1	TAL BUF	TRB
P:3005A	280-21070-D-60-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-60-A		280-90193	280-89594	10/07/2011 18:41	1	TAL DEN	LT
A:300.0	280-21070-A-60		280-89646		10/05/2011 20:58	1	TAL DEN	EK
A:300.0	280-21070-A-60		280-89647		10/05/2011 20:58	1	TAL DEN	EK
A:350.1	280-21070-B-60		280-91038		10/13/2011 12:14	1	TAL DEN	SJS
A:9251	280-21070-A-60		280-90995		10/13/2011 09:47	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-60		280-90635		10/11/2011 13:42	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-60		280-90740		10/12/2011 08:47	1	TAL DEN	GEY

Lab ID: 280-21070-61 **Client ID: MW-12I**

Sample Date/Time: 10/04/2011 13:56 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-E-61		480-34665		10/10/2011 15:20	1	TAL BUF	TRB
A:8260B SIM	280-21070-E-61		480-34665		10/10/2011 15:20	1	TAL BUF	TRB
P:3005A	280-21070-D-61-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21070-D-61-A		280-90193	280-89594	10/07/2011 18:44	1	TAL DEN	LT
A:300.0	280-21070-A-61		280-89646		10/05/2011 21:14	1	TAL DEN	EK
A:300.0	280-21070-A-61		280-89647		10/05/2011 21:14	1	TAL DEN	EK
A:350.1	280-21070-B-61		280-91038		10/13/2011 12:15	1	TAL DEN	SJS
A:9251	280-21070-A-61		280-90995		10/13/2011 09:48	1	TAL DEN	LMK
A:SM 2320B	280-21070-A-61		280-90635		10/11/2011 14:38	1	TAL DEN	AJA
A:SM 5310B	280-21070-B-61		280-90740		10/12/2011 09:37	1	TAL DEN	GEY

Lab ID: 280-21070-61 DU **Client ID: MW-12I**

Sample Date/Time: 10/04/2011 13:56 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-21070-A-61 DU		280-89646		10/05/2011 21:31	1	TAL DEN	EK
A:300.0	280-21070-A-61 DU		280-89647		10/05/2011 21:31	1	TAL DEN	EK
A:SM 2320B	280-21070-A-61 DU		280-90635		10/11/2011 14:47	1	TAL DEN	AJA

Lab ID: 280-21070-62 **Client ID: TRIP BLANK**

Sample Date/Time: 10/04/2011 09:00 Received Date/Time: 10/05/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-21070-A-62		480-34665		10/10/2011 15:44	1	TAL BUF	TRB
A:8260B SIM	280-21070-A-62		480-34665		10/10/2011 15:44	1	TAL BUF	TRB

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

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

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

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	MB 480-34665/3		480-34665		10/10/2011 10:49	1	TAL BUF	TRB
A:8260B SIM	MB 480-34665/3		480-34665		10/10/2011 10:49	1	TAL BUF	TRB
P:3005A	MB 280-89594/1-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	MB 280-89594/1-A		280-90193	280-89594	10/07/2011 17:41	1	TAL DEN	LT
A:300.0	MB 280-89646/6		280-89646		10/05/2011 16:12	1	TAL DEN	EK
A:300.0	MB 280-89647/6		280-89647		10/05/2011 16:12	1	TAL DEN	EK
A:350.1	MB 280-91038/84		280-91038		10/13/2011 11:41	1	TAL DEN	SJS
A:9251	MB 280-90995/21		280-90995		10/13/2011 09:26	1	TAL DEN	LMK
A:SM 2320B	MB 280-90635/6		280-90635		10/11/2011 10:22	1	TAL DEN	AJA
A:SM 2320B	MB 280-90635/33		280-90635		10/11/2011 14:30	1	TAL DEN	AJA
A:SM 5310B	MB 280-90740/22		280-90740		10/12/2011 03:58	1	TAL DEN	GEY

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 480-34665/2		480-34665		10/10/2011 10:25	1	TAL BUF	TRB
A:8260B SIM	LCS 480-34665/2		480-34665		10/10/2011 10:25	1	TAL BUF	TRB
P:3005A	LCS 280-89594/2-A		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	LCS 280-89594/2-A		280-90193	280-89594	10/07/2011 17:44	1	TAL DEN	LT
A:300.0	LCS 280-89646/4		280-89646		10/05/2011 15:38	1	TAL DEN	EK
A:300.0	LCS 280-89647/4		280-89647		10/05/2011 15:38	1	TAL DEN	EK
A:350.1	LCS 280-91038/85		280-91038		10/13/2011 11:42	1	TAL DEN	SJS
A:9251	LCS 280-90995/19		280-90995		10/13/2011 09:24	1	TAL DEN	LMK
A:SM 2320B	LCS 280-90635/4		280-90635		10/11/2011 10:05	1	TAL DEN	AJA
A:SM 2320B	LCS 280-90635/31		280-90635		10/11/2011 14:11	1	TAL DEN	AJA
A:SM 5310B	LCS 280-90740/20		280-90740		10/12/2011 03:20	1	TAL DEN	GEY

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
A:300.0	LCSD 280-89646/5		280-89646		10/05/2011 15:55	1	TAL DEN	EK
A:300.0	LCSD 280-89647/5		280-89647		10/05/2011 15:55	1	TAL DEN	EK
A:350.1	LCSD 280-91038/86		280-91038		10/13/2011 11:44	1	TAL DEN	SJS
A:9251	LCSD 280-90995/20		280-90995		10/13/2011 09:25	1	TAL DEN	LMK
A:SM 2320B	LCSD 280-90635/5		280-90635		10/11/2011 10:14	1	TAL DEN	AJA
A:SM 2320B	LCSD 280-90635/32		280-90635		10/11/2011 14:22	1	TAL DEN	AJA
A:SM 5310B	LCSD 280-90740/21		280-90740		10/12/2011 03:39	1	TAL DEN	GEY

Client: SCS Engineers Job Number: 280-21070-1

Laboratory Chronicle

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 280-89646/3		280-89646		10/05/2011 15:22	1	TAL DEN	EK
A:300.0	MRL 280-89647/3		280-89647		10/05/2011 15:22	1	TAL DEN	EK

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
P:3005A	280-21072-M-3-I MS		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21072-M-3-I MS		280-90193	280-89594	10/07/2011 17:54	1	TAL DEN	LT
A:SM 5310B	280-20788-B-1 MS		280-90740		10/12/2011 04:32	1	TAL DEN	GEY

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
P:3005A	280-21072-M-3-J MSD		280-90193	280-89594	10/07/2011 05:30	1	TAL DEN	CLI
A:6020	280-21072-M-3-J MSD		280-90193	280-89594	10/07/2011 17:58	1	TAL DEN	LT
A:SM 5310B	280-20788-B-1 MSD		280-90740		10/12/2011 04:50	1	TAL DEN	GEY

Lab References:

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver

Analytical Resources, Incorporated
Analytical Chemists and Consultants

27 October 2011

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

RE: Project: OVSL
ARI Job No.: TQ16

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 5, 2011. The samples were received in good condition. It was noted upon sample receipt that the 'trip blank' sample was not received. The remaining 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 TQ16

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

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

ARI Assigned Number: TQ16	Turn-around Requested: Standard
ARI Client Company: SCS Engineers	Phone: 4252895455
Client Contact: Dan Venchiarutti	
Client Project Name: Hansville LF	
Client Project #: 04211017	Samplers: SA & WC
Date: 10/5/2011	Page: 1 of 2
No. of Coolers:	Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Low Level Arsenic								Notes/Comments
MW-7	10/04/11	0900	Aqueous	1	✓								
MW-6	10/04/11	1004	Aqueous	1	✓								
MW-20DD	10/04/11	1004	Aqueous	1	✓								
MW-14	10/04/11	1057	Aqueous	1	✓								
MW-5	10/04/11	1224	Aqueous	1	✓								
MW-13D	10/04/11	1313	Aqueous	1	✓								
MW-12I	10/04/11	1356	Aqueous	1	✓								

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: Wayne Chang	Printed Name: Jose Ugas	Printed Name:	Printed Name:
	Company: SCS Engineers	Company: ARI	Company:	Company:
	Date & Time: 10/5/11 1415	Date & Time: 10/5/11 14:15	Date & Time:	Date & Time:

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

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

00002 : 5 1 2 1

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number:
Turn-around Requested: Standard
Date: 10/5/2011
Page: 2 of 2
ARI Client Company: SCS Engineers
Phone: 4252895455
Client Contact: Dan Venchiarutti
No. of Coolers:
Cooler Temps:
Client Project Name: Hansville LF
Client Project #: 04211017
Samplers: SA & WC

Sample ID	Date	Time	Matrix	No. Containers	Low Level Arsenic								Notes/Comments
SW-1	10/04/11	1050	Aqueous	1	✓								
SW-4	10/04/11	1030	Aqueous	1	✓								
SW-6	10/04/11	1000	Aqueous	1	✓								
SW-7	10/04/11	0905	Aqueous	1	✓								
Trip Blank	10/04/11	—	Aqueous	1	✓								

Comments/Special Instructions

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
Printed Name: Wayne Chang	Printed Name: Jose Ugas	Printed Name:	Printed Name:
Company: SCS Engineers	Company: ARI	Company:	Company:
Date & Time: 10/5/11 1415	Date & Time: 10/5/11 14:15	Date & Time:	Date & Time:

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ~~SCS Engineers~~ AV SCS Project Name: Hansville LF

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

Assigned ARI Job No: TQ116 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)	6.7	

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: JW Date: 10/5/11 Time: 15:15

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: AV Date: 10/5/11 Time: 1635

***** 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:

Trip Blank sample not received.

By: AV Date: 10/5/11

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TQ16
Client: STL
Project Event: 04211017
Project Name: Hansville Landfill

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-7	TQ16A	11-22384	Water	10/04/11 09:00	10/05/11 14:15
2.	MW-6	TQ16B	11-22385	Water	10/04/11 10:04	10/05/11 14:15
3.	MW-20DD	TQ16C	11-22386	Water	10/04/11 10:04	10/05/11 14:15
4.	MW-14	TQ16D	11-22387	Water	10/04/11 10:57	10/05/11 14:15
5.	MW-5	TQ16E	11-22388	Water	10/04/11 12:24	10/05/11 14:15
6.	MW-13D	TQ16F	11-22389	Water	10/04/11 13:13	10/05/11 14:15
7.	MW-12I	TQ16G	11-22390	Water	10/04/11 13:56	10/05/11 14:15
8.	SW-1	TQ16H	11-22391	Water	10/04/11 10:50	10/05/11 14:15
9.	SW-4	TQ16I	11-22392	Water	10/04/11 10:30	10/05/11 14:15
10.	SW-6	TQ16J	11-22393	Water	10/04/11 10:00	10/05/11 14:15
11.	SW-7	TQ16K	11-22394	Water	10/04/11 09:05	10/05/11 14:15

Printed 10/05/11

TQ16: [illegible]

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-7
SAMPLE

Lab Sample ID: TQ16A
LIMS ID: 11-22384
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	7440-38-2	Arsenic	0.04	1.07	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16 : 888885

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: TQ16B
LIMS ID: 11-22385
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	3.2	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:00397

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-20DD
SAMPLE

Lab Sample ID: TQ16C
LIMS ID: 11-22386
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	3.5	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16 : [illegible]

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-14
SAMPLE

Lab Sample ID: TQ16D
LIMS ID: 11-22387
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	pg/L	Q
200.8	10/11/11	200.8	10/24/11	7440-38-2	Arsenic	0.2	22.6	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ1S: 88689

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5
SAMPLE

Lab Sample ID: TQ16E
LIMS ID: 11-22388
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	7440-38-2	Arsenic	0.2	2.0	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:00018

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-13D
SAMPLE

Lab Sample ID: TQ16F
LIMS ID: 11-22389
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	**3.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:GR0411

ANALYTICAL RESOURCES INCORPORATED

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Sample ID: MW-12I
SAMPLE

Lab Sample ID: TQ16G
LIMS ID: 11-22390
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	7440-38-2	Arsenic	0.2	2.2	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:00012

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
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Sample ID: SW-1
SAMPLE

Lab Sample ID: TQ16H
LIMS ID: 11-22391
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	1.6	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:00013

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: SW-4
SAMPLE

Lab Sample ID: TQ16I
LIMS ID: 11-22392
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	**1.9**	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16: 092414

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: SW-6
SAMPLE

Lab Sample ID: TQ16J
LIMS ID: 11-22393
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	**4.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:000015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: SW-7
SAMPLE

Lab Sample ID: TQ16K
LIMS ID: 11-22394
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: 10/04/11
Date Received: 10/05/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	**7440-38-2**	**Arsenic**	0.2	1.8	

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:00016

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: METHOD BLANK

Lab Sample ID: TQ16MB
LIMS ID: 11-22384
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	10/11/11	200.8	10/24/11	7440-38-2	Arsenic	0.04	0.04	U

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

TQ16:00017

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: LAB CONTROL

Lab Sample ID: TQ16LCS
LIMS ID: 11-22384
Matrix: Water
Data Release Authorized:
Reported: 10/26/11

QC Report No: TQ16-STL
Project: Hansville Landfill
04211017
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	4.94	5.00	98.8%	

Reported in µg/L

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

Chain of Custody Record

TAL-4124-280 (0508)

Sampler ID ______

Temperature on Receipt 2.6/3.0/2.8 FP MJ 10/5

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client	Project Manager	Date	Chain of Custody Number
SCS ENGINEERS	DAN VENCHARUTTI		129408

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page
2405 140th AVE NE # 107	(425) 289 - 5455		Page 1 of

City	State	Zip Code	Site Contact	Lab Contact
BELLEVUE	WA	98005	SAM ADLINGTON	Betsy Sara

Project Name and Location (State): Hansville (WA)

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.: 28006013 (Bid 2)

Special Instructions/ Conditions of Receipt:

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Alks	TOC	Chloride	Sulfate	Ammonia	Diss Mn	Long List VOA - Buffalo	V. chloride - SIM VOA - Buffalo	Diss As - direct sub to ARI	NO_3 (IC)	NO_2 (IC)	o-phos (IC)
mw - 07	10/4/11	0900		X			1	2	1	6			X	X	X	X	X	X		X		X	X	X
sw - 07	↓	0915		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
sw - 06	↓	1000		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
mw - 06	↓	1004		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
mw - 20DD	↓	1004		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
sw - 04	↓	1030		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
sw - 01	↓	1050		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
mw - 14	↓	1057		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
mw - 05	↓	1224		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
mw - 13D	↓	1313		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
mw - 12I	↓	1356		X			↓	↓	↓	↓			↓	↓	↓	↓	↓	↓		↓		↓	↓	↓
TRIP BLANK	—									4									X	X				

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STANDARD

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: SAM ADLINGTON [signature]	10/4/11	1500	1. Received By: [signature]	10/5/11	1000
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: SEAL #'s 166284 166274 166264

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-21070-1

Login Number: 21070

List Source: TestAmerica Denver

List Number: 1

Creator: Bindel, Aaron M

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.	False	1 OF 6 VOA'S RCVD UNLABLED IN BAGGIES W/ SAMPLES SW-04, SW-07, SW-06, SW-01
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 280-21070-1

Login Number: 21070
List Number: 1
Creator: Kinecki, Kenneth

List Source: TestAmerica Buffalo
List Creation: 10/06/11 06:59 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	