2023 ANNUAL ENVIRONMENTAL MONITORING REPORT

Hansville Landfill, Kitsap County, Washington

Prepared for: Kitsap County Public Works - Solid Waste

Project No. AS160423-05 • February 29, 2024 FINAL

Aspect
A Geosyntec Company

earth + water

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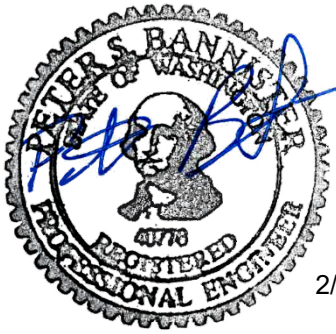

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Contents

Acronyms ..... **iii**

1 Introduction **1**

2 Site Background **2**

2.1 Site Location and Description 2

2.1.1 Engineering Controls 2

2.1.2 Current Property Uses 3

2.2 Regulatory Framework 3

2.3 Surrounding Land Use 4

2.4 Hydrogeology 4

2.5 Environmental Monitoring Network 5

2.5.1 Subsurface Gas 5

2.5.2 Groundwater 5

2.5.3 Surface Water 6

2.5.4 Cleanup Criteria 6

3 Site Activities **7**

3.1 Routine Environmental Monitoring 7

3.2 Special Projects 7

4 Landfill Gas Conditions **9**

4.1 Landfill Gas Monitoring 9

4.2 Landfill Gas System Performance 9

4.3 Explosive Gas Control 10

5 Groundwater and Surface Water Conditions **11**

5.1 Groundwater and Surface Water Monitoring 11

5.2 Groundwater Elevations and Flow 11

5.3 Water Quality Results 11

5.4 Geochemical Parameters 12

5.5 Statistical Evaluation 13

5.5.1 Time-Series Graphs 13

5.5.2 Statistical Trend Analysis 13

5.5.3 Trend Projections 14

5.5.4 Calculation of Statistical Limits 15

6 Annual Inspections....16

7 References....17

8 Limitations....18

List of Tables

1 Hansville Landfill Site Cleanup Levels....6

List of Appendices

A Landfill Gas Data
- Table A-1. Landfill Gas Data, First Quarter, 2023
- Table A-2. Landfill Gas Data, Second Quarter, 2023
- Table A-3. Landfill Gas Data, Third Quarter, 2023
- Table A-4. Landfill Gas Data, Fourth Quarter, 2023
- Figure A-1. Landfill Gas System

B Water Quality Results
- Table B-1. Water Level Elevations 2023
- Table B-2. Groundwater Quality Results, 2023
- Table B-3. Surface Water Quality Results, 2023
- Figure B-1. Compliance Monitoring Locations

C Groundwater Statistics and Time-Series Graphs
- Table C-1. Statistical Analysis
- Table C-2. Statistical Limit Analysis
- Figure C-1. 2023 Fourth Quarter Dissolved Arsenic Sampling Results
- Figure C-2. 2023 Fourth Quarter Vinyl Chloride Sampling Results
- Figure C-3. 10-Year Attenuation Curves

D Fourth Quarter Field Forms and Laboratory Reports

E Annual Inspection Forms – Kitsap Public Health District

Acronyms

Aspect	Aspect Consulting, a Geosyntec Company
bgs	below ground surface
CAP	Cleanup Action Plan
cfm	cubic feet per meter
CMP	Compliance Monitoring Plan
COCs	contaminants of concern
Ecology	Washington Department of Ecology
FS	Feasibility Study
KCSL	Kitsap County Sanitary Landfill
KPHD	Kitsap Public Health District
mg/L	milligrams per liter
µg/L	micrograms per liter
MSW	municipal solid waste
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
PSCAA	Puget Sound Clean Air Agency
RASR	Remedial Action Status Report
RI	Remedial Investigation
scfm	standard cubic feet per minute
Site	Hansville Landfill Site
SHA	Site Hazard Assessment
UCL / LCL	upper confidence limit / lower confidence limit
VOCs	volatile organic compounds
WAC	Washington Administrative Code
WMW	Waste Management of Washington

1 Introduction

This combined fourth quarter 2023 and 2023 annual monitoring report documents site activities conducted at and environmental monitoring results for the Hansville Landfill Site (Site; or the Landfill). This report was prepared by Aspect Consulting, a Geosyntec company, (Aspect) on behalf of Kitsap County (County) Public Works Solid Waste Division and Waste Management of Washington (WMW). Cleanup activities at the Site have been conducted under the Washington State Model Toxics Control Act (MTCA). Ongoing environmental monitoring at the Site supports the remedy of natural attenuation of groundwater with enhanced monitoring and institutional controls that were established with the final Cleanup Action Plan (CAP) provided with the Amended Consent Decree No. 95-2-03005-1 (August 5, 2011). The data sets presented in this report were collected in accordance with the Ecology-approved Compliance Monitoring Plan (CMP; SCS Engineers, 2011; SCS Engineers, 2012), except where otherwise noted.

During 2023, conditions monitored at the Site were consistent with historical trends and continued to show improvements in protection of human health and the environment. This report is organized to include topics listed in the CMP (SCS Engineers, 2011).

- Section 2 summarizes Site background, including general Site information, regulatory framework, surrounding land use, hydrogeologic conditions, the environmental monitoring network, and cleanup criteria.
- Section 3 describes Site activities during the fourth quarter 2023 and provides a summary of previous Site activities in 2023.
- Section 4 describes landfill gas collection activities and monitoring results during the fourth quarter 2023. The landfill gas collection system was safely operated to improve groundwater protection. Supporting figures and data tables are presented in Appendix A.
- Section 5 describes groundwater and surface water conditions observed during the fourth quarter 2023, including statistical analysis of trends in groundwater concentrations for 2023 and an assessment of natural attenuation processes. Supporting figures and data tables are presented in Appendix B, statistical analyses are included in Appendix C, and Appendix D presents laboratory reports and data review.
- Section 6 summarizes landfill inspection reports prepared by the Kitsap Public Health District. Copies of the inspection reports are included in Appendix E.
- Section 7 lists reference sources used in this report.

2 Site Background

Details on Site background were provided in the Remedial Investigation (RI) report (Parametrix, 2006), and the Feasibility Study (FS) report (Parametrix, 2009). This section summarizes Site background to provide context for ongoing Site activities and compliance monitoring.

2.1 Site Location and Description

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. The Landfill is approximately 5 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 sloping drainages with perennial creeks that ultimately discharge into Port Gamble Bay. The topography ranges between approximately 310 and 390 feet elevation North American Vertical Datum of 1988 (NAVD88). A Site location map is provided on Figure B-1, showing property boundaries and other Site features.

The Site includes the Landfill, the Landfill property (Property), and a portion of land owned by the Port Gamble S'Klallam Tribe. The Landfill was active between 1962 and 1989, and consists of three separate disposal areas, or cells. These include the following:

- A 13-acre municipal solid waste disposal cell (main municipal solid waste [MSW] cell) situated within the central portion of the Property.
- A 4-acre demolition disposal cell situated on the northeast corner of the property, which accepted construction, demolition, and land-clearing wastes.
- A 0.33-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 reportedly located near the northeast corner of the demolition disposal area.

2.1.1 Engineering Controls

The engineering controls at the Landfill include engineered cover systems and an active landfill gas collection system. The engineered cover systems incorporate a geomembrane, vegetated surface, and integrated surface water control to prevent erosion. The layout of the landfill gas collection system is shown on Figure A-1, and includes:

- 13 vertical collection wells installed within the main MSW cell.
- Approximately 3,200 feet of horizontal collector trench installed below the engineered cover system at the main MSW cell and the demolition disposal cell with 8 monitoring and control points.
- Laterals and a perimeter header leading to the blower and flare compound.

The 10 perimeter collection wells originally installed outside the western edge of the main MSW cell were decommissioned in 2019 because they were subject to vacuum leaks and did not support landfill gas collection (Aspect, 2020).

2.1.2 Current Property Uses

The County owns the Property and has operated a transfer station east of the Landfill for solid waste transfer and/or recycling operations since 1989. The remaining portions of the Property are largely comprised of a former soil borrow area and wooded land. Prior to development of the landfill, the Property was undeveloped forested land.

2.2 Regulatory Framework

The Hansville Landfill is a former MSW landfill that stopped accepting waste and closed in 1989. The closure met requirements of Chapter 173-304 of the Washington Administrative Code (WAC), and included the following engineering controls:

- Installation of horizontal gas collector trenches in the main MSW cells and the demolition disposal cell to prevent landfill gas migration.
- Installation of an engineered cover system over all three distinct disposal areas to reduce or eliminate precipitation infiltration through refuse.

In 1991, the Bremerton-Kitsap County Health Department required corrective actions to better control landfill gas migration and prevent groundwater impacts. Kitsap County Sanitary Landfill[1] (KCSL) converted the landfill gas collection system from passive to active. KCSL also conducted additional investigations, continued environmental monitoring, and implemented additional improvements at the Site as part of a corrective action program. The active landfill gas collection and flare system has been in operation since 1991.

Also, in 1991, the Washington State Department of Ecology (Ecology) performed a Site Hazard Assessment (SHA) under MTCA, which resulted in an initial ranking of 3. In 1992, this ranking was subsequently changed to a 1 (the highest rank on a scale of 1 to 5) based on changes in the state ranking model.

In October 1995, Ecology signed a consent decree with the County and KCSL to conduct a RI/FS for the Site. The RI/FS reports (Parametrix, 2006; Parametrix, 2009) identified contaminants of concern (COCs) related to the landfill in groundwater and in seepage to surface water. 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. The highest concentrations of these COCs were observed adjacent to the waste disposal areas, with decreasing concentrations at increasing distances to the landfill.

In preparing the 2011 Amended Consent Decree and CAP, Ecology selected the remedy involving natural attenuation of groundwater with enhanced monitoring and institutional controls (including a restrictive covenant for the Landfill Property). A CMP (SCS Engineers, 2011; SCS Engineers, 2012) provides monitoring program details, including

[1] By 1998, WMW assumed control of KCSL through a series of sales, mergers, and acquisitions.

the Sampling and Analysis Plan and the Quality Assurance Plan. Ongoing compliance monitoring under the CAP has been conducted since the fourth quarter of 2011.

During the summer of 2016, Ecology initiated the first 5-year review of the Hansville Landfill MTCA remedy as defined under the 2011 Amended Consent Decree. Consistent with Section XXVI of the Amended Consent Decree, a Remedial Action Status Report (RASR; SCS Engineers, 2016) was prepared and submitted to Ecology. In August 2016, Ecology prepared a draft memorandum that included an evaluation of the previous 5 years of groundwater data and comments to the RASR. Based on Ecology's review, the current monitoring program will continue to be implemented through the next 5-year MTCA review cycle. According to Ecology's website the next 5-year review was planned for 2022. To support Ecology's planned 5-year review, Aspect prepared a Remedial Action Status Report and submitted an Agency Review Draft on June 28, 2022 (Aspect, 2022a). At the time of this report an update from Ecology on the status of the planned 5-year review has not been received.

2.3 Surrounding Land Use

The Property is bordered to the south and west by lands owned by the Port Gamble S'Klallam Tribe. Tribal lands in the immediate vicinity of the Landfill Property consists of woodland and recreational land. The Point Casino and Hotel is located approximately 1,000 feet from the Landfill. The nearest Tribal residential land use is approximately 2,000 feet from the Landfill.

Surrounding areas to the north and east of the Property are zoned by the County as light industrial use, low-density residential, and rural woodland. The nearest off-property structures include a shop and office approximately 200 feet from the demolition disposal cell.

2.4 Hydrogeology

The regional near-surface geology in the vicinity of the Landfill is dominated by glacio-fluvial and glaciolacustrine deposits associated with the Vashon glaciation. The RI (Parametrix, 2006) 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) and is also called the upper aquifer. All the monitoring wells are completed in the upper aquifer. 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 with the Vashon Drift.

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

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

Groundwater in the upper aquifer near the Landfill is approximately 50 feet below the bottom extent of refuse. Groundwater flows towards the west-southwest, and discharges into the headwaters of perennial creeks, including Creek A, Creek B, and Middle Creek (see Figure B-1). The dense silts reported for the Kitsap Formation underlying the upper aquifer restrict downward groundwater flow.

2.5 Environmental Monitoring Network

This section summarizes historical development of the Site performance and compliance monitoring network. The following are the conditional points of compliance for the Hansville Site described in the CAP:

- The Upper Aquifer at the Landfill Property boundary
- The Upper Aquifer downgradient of the Landfill Property boundary and upgradient of the creek headwaters on Tribal property
- Groundwater discharge to surface water at the headwaters of Creek A, Creek B, and Middle Creek on Tribal property

2.5.1 Subsurface Gas

Since 1990, the landfill gas collection system and gas probes have been monitored to assess potential landfill gas migration from the Landfill, and landfill gas concentrations within the waste.

All (nine) subsurface gas probes were installed outside the waste in native soils to measure for potential landfill gas migration. In 1990, six subsurface gas probes (GP-1, GP-2S, GP-2I, GP-2D, GP-3, and GP-4) were installed at four on-Property locations to monitor the southern portion of the Landfill. In 1994 and 1996, gas probes GP-5 and GP-6 were installed to monitor the northern portion of the Landfill. In 1996, gas probe GP-7 was installed, to monitor the off-Property area west of the Landfill, adjacent to groundwater monitoring well MW-9.

Per the CAP, landfill gas performance monitoring includes quarterly field measurements at the nine subsurface gas probes and the landfill gas collection system (21 vertical well and horizontal trench monitoring locations, the blower inlet and outlet ports). Subsurface gas compliance monitoring locations are shown on Figures A-1 and B-1.

2.5.2 Groundwater

Groundwater monitoring was initiated at the Site in 1982 with the installation of three monitoring wells (MW-1 through MW-3). Three additional monitoring wells (MW-4 through MW-6) were added to the monitoring program in 1988. Beginning in 1996, 10 monitoring wells were installed as part of a phased RI (Parametrix, 2006):

- Phase I included wells MW-7 through MW-12

- Phase II included wells MW-8D, MW-12I, MW-13S, MW-13D, and MW-14

Based on the RI groundwater monitoring results, the CAP includes the following six points of compliance: MW-5, MW-6, MW-7, MW-12I, MW-13D, and MW-14. See Figure B-1 for the groundwater compliance monitoring locations.

2.5.3 Surface Water

Surface water monitoring 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, SW-10) were established in 1996 during the RI (Parametrix, 2006). Based on the RI surface water monitoring results, the CAP includes the following four points of compliance: SW-1, SW-4, SW-6, and SW-7. See Figure B-1 for the surface water compliance monitoring locations.

2.5.4 Cleanup Criteria

The CAP established the final Site-specific cleanup levels for groundwater and surface water, summarized in the table below.

Table 1. Hansville Landfill Site Cleanup Levels

Chemical	Media	Site Cleanup Level (µg/L)	Origin of Cleanup Level
Vinyl Chloride	Groundwater	0.025	EPA[1] 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]U.S. Environmental Protection Agency

The performance standard for on-Property probes is to operate the landfill gas collection system to maintain methane concentrations below five percent by volume (see WAC 173-304-460).

3 Site Activities

Site activities during 2023 included routine environmental monitoring of landfill gas, groundwater, and surface water, and nonroutine special projects.

3.1 Routine Environmental Monitoring

A chronology of on-Site activities performed during the fourth quarter 2023 is provided below. There were no deviations from the Compliance Monitoring Plan (SCS, 2011) during the fourth quarter 2023 environmental monitoring.

- On October 18, 2023, Aspect completed the fourth quarter groundwater and surface water sampling in accordance with the CMP (SCS Engineers, 2011). Details of groundwater and surface water sampling are provided in Section 5.
- On October 24 and November 16, 2023, Aspect completed the monthly performance monitoring of the blower system, biofilter system, and condensate management system.
- On December 21, 2023, Aspect conducted compliance landfill gas monitoring in accordance with the CMP (SCS Engineers, 2011). Details of landfill gas monitoring are provided in Section 4.

Previously during 2023, Site activities were documented in quarterly reports (Aspect 2023b, Aspect 2023c, and Aspect 2023d) and included the following:

- Monthly performance and maintenance checks of the flare compound and condensate recovery systems.
- Quarterly landfill gas compliance monitoring and wellfield tuning and maintenance.
- Quarterly groundwater and surface water performance and compliance monitoring.

3.2 Special Projects

Special projects included biofilter system installation to treat landfill gas, dedicated sampling pump repair for MW-5, and drainage and roadway improvements.

From March 6 to March 8, 2023, Aspect constructed a biofilter system for landfill gas treatment at the Hansville Landfill Site. This included a temporary shutdown of the blowers and removal of the flare system, directing landfill gas through a perforated biofilter pipe system, and spreading 90 yards of woody compost across the biofilter pipping system to a total thickness of approximately 3 feet. Together, the piping and woody compost form the biofilter bed or “biobed.” Surface emissions monitoring across the biobed will be conducted using a GEM-5000 to assess landfill gas system performance rather than blower inlet and outlet readings.

On March 28, 2023, Aspect redeployed the MW-5 dedicated bladder pump. Throughout February and March, the MW-5 dedicated bladder pump was assessed, the degraded o-rings were replaced, and the pump was tested and confirmed to be operational.

From April 24 to May 4, 2023, Aspect coordinated and completed the implementation of the drainage and roadway improvements. The County identified three areas of standing water and overflow from ditches at the bottom of landfill cover slopes. Drain pipes and discharge pads were installed to effectively drain the ditches. Sections of the landfill access road affected by ditch overflow and standing water were improved by applying a layer of gravel. These activities were documented in an As-Built Report (Aspect, 2023e).

4 Landfill Gas Conditions

The following sections provide a discussion of landfill gas monitoring, landfill gas collection system performance, and explosive gas control. The layout of the landfill gas collection system is shown on Figure A-1 (Appendix A).

Since active landfill gas collection started in 1991, the system has historically been operated to control landfill gas migration and to protect groundwater. Since 1992, little to no methane has been observed at gas compliance probes. In 1995, the maximum methane concentration was 38 percent, and the balance gas concentration was 44 percent, indicating that approximately half of the gas collected was from the atmosphere. Until approximately January 2013, landfill gas collection rates decreased steadily due to low methane concentrations and difficulty in sustaining flare operation.

From 2013 through 2022, the landfill gas collection rate was maintained at approximately 70 standard cubic feet per minute (scfm) to improve groundwater protection, and average methane and carbon dioxide concentrations were about 4 percent and 12 percent, respectively. Starting in 2023, to further improve groundwater protection, the second blower was activated to provide a total landfill gas collection rate of approximately 120 scfm. Even under this higher flow rate, methane and carbon dioxide concentrations were observed at around 3 percent and 16 percent, respectively.

4.1 Landfill Gas Monitoring

During the fourth quarter of 2023, monitoring at the landfill gas collection system blower compound was performed on October 24 and November 16, and compliance monitoring of the landfill gas collection system and compliance probes was performed on December 21.

Landfill gas concentrations were measured with a calibrated GEM-5000 multigas meter. Landfill gas monitoring parameters collected for the compliance monitoring event are included in Appendix A, Tables A-1 through A-4, and summarized below:

- Landfill gas composition measurements included methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), and balance gas (Balance) concentrations.
- Collection system pressure measurements included the static pressure measured before and after any valve adjustments or purging, reported as “initial” and “adjusted,” respectively. No valve adjustments were made during the December 30 compliance monitoring round.
- Collection system flow-rate measurements were obtained at all locations via orifice plates. The differential pressure and gas temperature were measured to calculate flow. Table A-1 presents flow rates measured after valve adjustments, reported as “adjusted.”

4.2 Landfill Gas System Performance

During the fourth quarter of 2023, the flow at the blower inlet was approximately 120 scfm. Methane and carbon dioxide concentrations at the blower inlet were 2.8 and 15.6

percent by volume, respectively. The oxygen concentration was 3.1 percent by volume. The explosive range for methane in air is approximately 5 to 15 percent by volume, whereas the minimum methane concentration to sustain a flame is approximately 20 percent. Landfill gas measured at the blower inlet has contained less than 20 percent methane since 2012.

During the fourth quarter of 2023, methane concentrations measured at individual collection locations ranged between 0.0 and 7.7 percent by volume. The landfill gas concentrations across the wellfield have remained relatively stable since mid-2017. Wellfield optimization will continue to focus on maximizing methane and carbon dioxide collection rates.

Wellhead temperatures at vertical extraction well R-9 increased to above 100 degrees Fahrenheit in June 2023. Wellhead conditions at R-9 were monitored monthly until December, and the maximum temperature observed was 108.4 degrees Fahrenheit in September. This temperature was below a 110-degree-Fahrenheit threshold that would trigger reducing landfill gas collection from this location.

Condensate Management

On December 21, 2023, the 2,000-gallon condensate system storage tank held approximately 1,550 gallons, and the 2,000-gallon western sump was approximately half-full. The condensate system storage tank and western sump were last emptied in May 2023. The sump pump was replaced on August 29, 2023. The County will be notified when the condensate storage tank or the western sump approach three-fourths full for pump out and off-Site disposal.

Biofilter Bed Treatment Performance

The biofilter bed (biobed) was installed March 8, 2023. Methane concentrations were monitored across the biobed surface and in the breathing zone during monthly Site visits through the reporting period. The breathing zone conditions were measured using a personal four-gas meter set to warning alarm at 10 percent of the lower explosive limit, at 19.5 percent oxygen, at 25 parts per million (ppm) carbon monoxide, or at 5 ppm hydrogen sulfide. The four-gas meter has not alarmed in the breathing zone during monitoring. No supplemental media was added to the biobed because surface methane concentrations were generally below the design criterion. The biobed appears to be effectively reducing greenhouse gas emissions and controlling odor.

4.3 Explosive Gas Control

Methane was not detected at any of the landfill gas compliance monitoring probe locations during the fourth quarter of 2023. Locations of on-Property compliance probes GP-1, GP-2S, GP-2M, GP-2D, GP-3, GP-4, GP-5, and GP-6 are shown on Figure A-1, and the location of off-Property compliance probe GP-7 is shown on Figure B-1. Aspect observed an animal bore hole under monitoring probe GP-6. Routine compliance monitoring continues to show that the Site remains in compliance with explosive gas control, per WAC 173-304-460. Carbon dioxide concentrations in the compliance monitoring probes ranged from 0.1 to 3.9 percent by volume, and oxygen concentrations ranged from 16.9 to 21.5 percent by volume.

5 Groundwater and Surface Water Conditions

This section addresses groundwater and surface water conditions based on the monitoring event on October 18, 2023. Samples were collected from six groundwater monitoring wells and from four surface water monitoring locations (see Figure B-1) for laboratory analysis.

5.1 Groundwater and Surface Water Monitoring

During the fourth quarter of 2023, Aspect monitored and sampled groundwater and surface water on October 18, 2023.

Field parameter measurements were made with a calibrated YSI multiparameter probe, and a calibrated Hach turbidimeter. Samples were collected in laboratory-supplied bottles and delivered to the laboratory on ice, using standard chain-of-custody methods, for analysis. Field parameters and laboratory results for all sampling events in 2023 are organized in Tables B-2 and B-3 (Appendix B), and listed below:

- Field parameters included dissolved oxygen, pH, oxidation reduction potential, specific conductivity, temperature, and turbidity.
- Conventional parameters included alkalinity, ammonia (as N), bicarbonate, carbonate, chloride, nitrate (as N), nitrite (as N), orthophosphate (as P), sulfate, and total organic carbon.
- Dissolved metals included arsenic and manganese.
- Detected volatile organic compounds (VOCs) included total 1,2-dichloroethene, cis-1,2-dichloroethene, and vinyl chloride.

5.2 Groundwater Elevations and Flow

Depth-to-groundwater measurements and calculated water table elevations for the fourth quarter of 2023 are presented in Table B-1, and a potentiometric surface map is provided on Figure B-1. Groundwater elevations ranged from 237.9 feet NAVD88 in MW-12I to 266.0 feet NAVD88 in MW-5. Groundwater at the Site flowed generally towards the west-southwest. Groundwater gradients ranged from 0.007 feet/feet in the upgradient areas, to 0.013 feet/feet further downgradient, with the gradient steepening and becoming more southwest oriented as it approaches the groundwater discharge area (Figure B-1). Groundwater elevation and gradient conditions were consistent with those observed during previous monitoring events.

5.3 Water Quality Results

Groundwater quality results from the fourth quarter of 2032 are presented in Table B-2, including field parameters, conventional parameters, dissolved metals, and VOCs. During the fourth quarter 2023 monitoring event, field parameters were within the range of observed values during previous monitoring events. Analytical results for groundwater COCs are summarized below (see Appendix B for water quality results tables and figures).

- The dissolved arsenic concentrations in monitoring well MW-14 and MW-13D were 0.0141 milligrams per liter (mg/L) and 0.0054 milligrams per liter (mg/L), respectively, and exceeded the 0.005 mg/L cleanup level. Dissolved arsenic was detected at concentrations below the cleanup level at the other groundwater points of compliance. See Section 5.5 for statistical evaluation of the arsenic concentrations.
- Dissolved manganese concentrations were less than the 2.24 mg/L cleanup level at all groundwater points of compliance.
- The vinyl chloride concentrations at monitoring wells MW-6, MW-12I, and MW-14 were 0.053 micrograms per liter (µg/L), 0.12 µg/L, and 0.026 µg/L, respectively, and exceeded the 0.025 µg/L cleanup level. Vinyl chloride was not detected at a reporting limit of 0.020 µg/L at other groundwater points of compliance. See Section 5.5 for statistical evaluation of the vinyl chloride concentrations.

Surface water quality results from the fourth quarter of 2023 are presented in Table B-3, including field parameters, conventional parameters, dissolved metals, and VOCs. Field parameters and analyte concentrations observed during the fourth quarter 2023 monitoring event were within the range of observed values during other monitoring events in 2023 During the fourth quarter of 2023, all analytical results for surface water COCs were either not detected at their respective reporting limits or were detected at concentrations below the Site cleanup levels.

- Dissolved arsenic was detected at concentrations below the Site cleanup level of 0.005 mg/L at all locations.
- Dissolved manganese was detected at concentrations below the Site cleanup level of 2.24 mg/L at SW-4, SW-6, and SW-7, and was not detected at SW-1.
- Vinyl chloride has not been detected in surface water samples since the third quarter 2013, and reporting limits have been less than the cleanup level of 0.025 µg/L.

5.4 Geochemical Parameters

Geochemical parameters in groundwater and surface water serve as indicators of landfill effects and can distinguish leachate impacts from gas-to-groundwater impacts. As shown in Tables B-2 and B-3, geochemical parameters collected at the Site include field parameters (dissolved oxygen, pH, Redox [reduction-oxidation potential], specific conductivity, and temperature), alkalinity/carbonate/bicarbonate, chloride, nitrate/nitrite/ammonia, sulfate, and total organic carbon.

Based on low concentrations of geochemical parameters identified as leachate indicators (such as chloride, sulfate, alkalinity, and bicarbonate) across the Site, there appears to be little if any leachate effect on groundwater and surface water quality. However, the downgradient monitoring wells show lower dissolved oxygen concentrations than the upgradient well (MW-5), which is likely caused by landfill gas coming in contact with

groundwater directly beneath the landfill. Optimizing landfill gas collection may reduce these impacts.

5.5 Statistical Evaluation

The groundwater quality data were evaluated following the description provided in the CAP (Appendix D). Time-series graphs show arsenic and vinyl chloride concentrations since 2007. Trend analysis and projected average concentrations are based on data collected since 2007, following Ecology guidance from the first 5-year review. See Appendix C for time-series graphs for groundwater quality.

5.5.1 Time-Series Graphs

Groundwater sampling results since 2007 are shown on time-series plots for dissolved arsenic (Figure C-1) and vinyl chloride (Figure C-2) at all compliance monitoring locations. Concentrations are decreasing or stable in all cases except dissolved arsenic concentrations observed at MW-13D, which have gradually increased to slightly above or at cleanup levels.

Figure C-1 shows that dissolved arsenic concentrations in groundwater have been less than the cleanup level of 0.005 mg/L at MW-5 (background well), MW-6, MW-7, and MW-12I. A slow and steady increase in dissolved arsenic concentrations has been observed at MW-13D, where concentrations historically hovered below the cleanup level and exceeded the cleanup level for the first time in the second quarter 2020 (Figure C-1). Dissolved arsenic concentrations at MW-14 were above Site cleanup levels, but have been decreasing since 2007.

Figure C-2 shows vinyl chloride concentrations in groundwater have been less than the cleanup level of 0.025 µg/L at MW-5 (background well), MW-7, and MW-13D. Vinyl chloride concentrations at MW-6, MW-12I, and MW-14 continued to trend downward over the long-term. During 2022 and 2023, the vinyl chloride concentration at MW-12I showed both a decreasing long-term trend and seasonality with relatively higher concentrations during the third and fourth quarter compared to the other quarters. A similar seasonality has been observed, where maximum annual concentrations were recorded in the dry season of 2020, 2019, 2018, 2015, 2013, 2012, for example.

5.5.2 Statistical Trend Analysis

Based on the results of statistical analysis provided in Table C-1, the dissolved arsenic concentrations in groundwater at MW-14, and vinyl chloride concentrations in groundwater at MW-6, MW-12I, and MW-14, have statistically significant downward trends. These results show continued progress toward achieving cleanup levels.

A statistically significant increasing trend in dissolved arsenic concentrations was observed at monitoring well MW-13D. Dissolved arsenic concentrations exceeded the Site-specific cleanup levels during the first two quarters of 2022 but leveled out at the cleanup levels in quarters three and four. In 2023, dissolved arsenic concentrations were below Site-specific cleanup levels during the first three quarters, and increased above the Site-specific cleanup level in the fourth quarter of 2023. Throughout 2022 and 2023, the arsenic concentrations remained below Ecology's reported regional natural background value reported by Ecology (Ecology, 2016; Ecology, 2022), as shown on Figure C-3.

Statistical trend analysis for dissolved arsenic concentrations in MW-13D has been conducted since 2019 (Aspect, 2020). As previously noted, arsenic concentrations since 2007 likely reflect natural variations or off-Site influences, as opposed to effects from the Hansville Landfill Site. This conclusion is based on an engineering analysis that identified a lack of other landfill indicators (like vinyl chloride, specific conductance, manganese, etc.) and the substantial lag between landfill activities and arsenic concentration increases. Dissolved arsenic concentrations in MW-13D and other locations continue to be monitored and evaluated.

Statistical analysis of groundwater data was performed in accordance with the CMP (SCS Engineers, 2011). The program Sanitas (ver. 10.0.15) was used to evaluate the Mann-Kendall Test and Sen's Slope. Mann-Kendall testing was performed to assess whether there were statistically significant trends in groundwater concentrations using the two-tailed test (alpha = 0.05). Mann-Kendall results are reported as an approximated normal distribution Test Value "Z" (where the number of data points was greater than 40). Sen's slope analysis was performed to identify the trend direction for statistically significant trends, and reflects the median of the slopes of all pairs of historical data.

Table C-1 provides results of statistical trend analysis, including the Mann-Kendall Test and Sen's Slope analysis. In all cases, the trends are statistically significant because the magnitude of the Mann-Kendall Test Value (Z) was greater than the Critical Value (which is based on the number of data points and alpha). In cases where the Sen's Slope is negative, it indicates a decreasing trend, and where the Sen's Slope is positive, it indicates an increasing trend.

5.5.3 Trend Projections

To qualitatively evaluate the convergence of downward trending groundwater exceedances with cleanup levels, exponential attenuation curves are shown on Figure C-3. These curves are projected out 10 years, through the end of 2031. Based on these long-term projections, the findings include the following:

- Within 10 years, the average vinyl chloride concentrations will meet the cleanup level in MW-6, MW-12I, and MW-14.
- In more than 10 years, the average dissolved arsenic in MW-14 will meet the cleanup level.

Optimizing the landfill gas collection system may reduce the time to meet cleanup levels. This is consistent with elements of the contaminant fate-and-transport model presented in the RI/FS (Parametrix, 2006; Parametrix, 2009). Increasing landfill gas collection reduces the potential for landfill gas (containing carbon dioxide, methane, and VOCs) to come in contact with groundwater, which results in low dissolved oxygen.

- For vinyl chloride, this means reducing the mass transfer from vapor phase to groundwater, and increasing the natural attenuation rates.
- For dissolved metals, this means maintaining a higher pH in groundwater, and preventing mobilization of naturally occurring arsenic and manganese.

A linear trend was calculated for increasing dissolved arsenic concentrations at MW-13D, as shown on Figure C-3. This projected trend biases future concentrations high because it does not account for the historical oscillation in concentrations. For reference, the graph for MW-13D on Figure C-3 shows the average natural background concentration for the Puget Sound basin, based on Ecology's publication *Natural Background Groundwater Arsenic Concentrations in Washington State* (Ecology, 2016). The mean dissolved-arsenic concentration at MW-13D did not exceed the cleanup level during 2023, and it is not expected to exceed the natural background concentration in the next 10 years.

5.5.4 Calculation of Statistical Limits

Statistical limit concentrations were evaluated to assess the approach toward cleanup levels consistent with the CAP. Table C-2 shows the calculated annual statistics—including the mean[2], 95 percent upper confidence limit (UCL), and 95 percent lower confidence limit (LCL)—for sampling results from 2007 through 2023.

Except for dissolved arsenic at MW-13D, the mean and UCL concentrations have trended downward over time. For dissolved arsenic at MW-14, the UCL has lagged the mean trend by at least 5 years. For vinyl chloride at MW-6, MW-12I, and MW-14, the UCL has lagged the mean trend by 1 to 2 years. This lag will need to be considered when determining compliance with groundwater and surface water cleanup levels under MTCA (per WAC 173-340-720(9) and 173-340-730(7), respectively).

Statistical limit concentrations for dissolved arsenic at MW-13D were added to Table C-2 to account for the observed increasing trend. This analysis was first included in the annual 2020 report. The LCL concentrations at MW-13D equaled (but did not exceed) the dissolved arsenic cleanup level in 2021, 2022, and 2023, while the UCL slightly exceeded the cleanup level in 2022 and 2023. We recommend taking the steps necessary for establishing background dissolved arsenic concentrations at this Site.

[2] The mean statistic was based on the least-squares regression method for log-transformed data, as shown by the curved trend lines in Figure C-3.

6 Annual Inspections

During 2023, the Kitsap Public Health District (KPHD) inspected the Landfill once each quarter. The inspection dates and comments are as follows:

- March 31, 2023: Compliant; cap was mowed and in "good condition" and a biofilter was installed on site.
- June 15, 2023: Compliant; cap needs to be mowed and gravel has been placed on roadways to improve driving access.
- September 29, 2023: Compliant; cap in "good condition" and stormwater drainage has greatly improved. No water was observed pooling after major rain.
- November 16, 2023: Compliant; cap in "good condition" and stormwater improvements have continued to perform well.

A copy of each inspection form and summary letter is included in Appendix E.

7 References

Aspect Consulting, LLC (Aspect), 2020, Final memorandum re: Hansville Landfill – Minor Changes to Landfill Gas Collection, February 21, 2020.

Aspect Consulting, LLC (Aspect), 2022a, Remedial Action Status Report, Hansville Landfill Site, June 28, 2022.

Aspect Consulting, LLC (Aspect), 2023b, First Quarter 2023 Environmental Monitoring Report, Hansville Landfill, Kitsap County, WA, May 31, 2023.

Aspect Consulting, LLC (Aspect), 2023c, Second Quarter 2023 Environmental Monitoring Report, Hansville Landfill, Kitsap County, WA, August 25, 2023.

Aspect Consulting, LLC (Aspect), 2023d, Third Quarter 2023 Environmental Monitoring Report, Hansville Landfill, Kitsap County, WA, November 28, 2023.

Aspect Consulting, LLC (Aspect), 2023e, As Built Report for Drainage and Roadway Improvements, Hansville Landfill, Kitsap County, WA, August 11, 2023.

Parametrix, 2006, Hansville Landfill Public Review Draft - Remedial Investigation/Feasibility Study, Remedial Investigation Report, September 22, 2006.

Parametrix, 2009, Hansville Landfill Remedial Investigation/Feasibility Study, Final Feasibility Study Report, June 15, 2009.

SCS Engineers (SCS), 2011, Compliance Monitoring Plan with Sampling & Analysis Plan and Quality Assurance Plan – Remedial Action at the Hansville Landfill, September 15, 2011.

SCS Engineers (SCS), 2012, Addendum to the Hansville Landfill Compliance Monitoring Plan, January 27, 2012.

SCS Engineers (SCS), 2016, Remedial Action Status Report (RASR), May 2016.

Washington State Department of Ecology (Ecology), 2011, Cleanup Action Plan Hansville Landfill, Kitsap County, Washington, Ecology Facility Site Identification Number: 2605, June 2011.

Washington State Department of Ecology (Ecology), 2016, Natural Background Groundwater Arsenic Concentrations in Washington State, Ecology Publication No. 14-09-044, March 2016.

Washington State Department of Ecology (Ecology), 2022, Natural Background Groundwater Arsenic Concentrations in Washington State, Ecology Publication No. 14-09-044, Draft for Public Comment published July 2021; Revised January 2022.

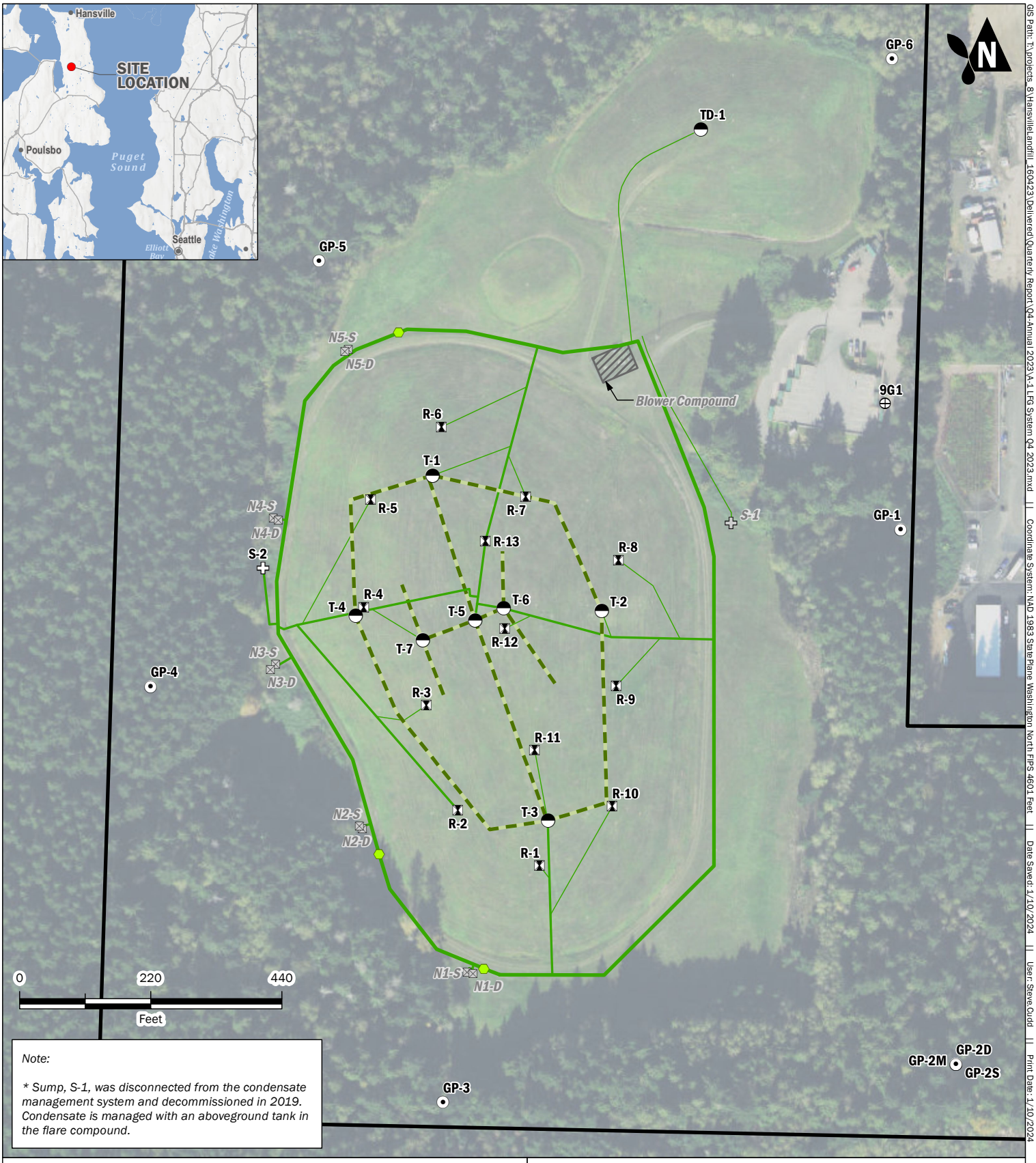
8 Limitations

Work for this project was performed for the Kitsap County Public Works Division (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

APPENDIX A

Landfill Gas Data



Note:

** Sump, S-1, was disconnected from the condensate management system and decommissioned in 2019. Condensate is managed with an aboveground tank in the flare compound.*

Exploration

- Gas Detection Probe
- Gas Extraction Well (in Refuse Completion)
- Gas Extraction Well (Native Soil Completion) *Disconnected in October, 2019*
- Trench Completion
- Well Geologic Control
- Condensate Sump
- Condensate Sump* *Decomissioned in 2019*

Landfill Gas System

- LFG Pipe - 2"
- LFG Pipe - 4"
- LFG Pipe - 6"
- Trench
- LFG Valve
- Landfill Boundary

Landfill Gas System

2023 Annual Environmental Monitoring Report
Hansville Landfill
Kitsap County, Washington

Aspect Consulting	JAN-2024	BY: MLK / RAP	FIGURE NO. A-1
	PROJECT NO. 160423	REVISED BY: CMT / SCC	

GIS Path: T:\projects_8\Hansville\Landfill_160423\Delivered\Quarterly Report\Q4-Annual 2023\A-1 LFG System Q4 2023.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 1/10/2024 || User: Steve.Cudd || Print Date: 1/10/2024

Table A-1. Landfill Gas Data, First Quarter, 2023

Project No. 160423, Hansville Landfill, Hansville, Washington

Location	Map ID	Date/Time	Methane CH_4 (% by vol)	Carbon Dioxide CO_2 (% by vol)	Oxygen O_2 (% by vol)	Balance Bal (% by vol)	System Pressure ("H_2O)	Static Pressure ("H_2O)	Wellhead Temperature (°F)	Flow Rate (SCFM)
Blower Inlet		3/27/23 10:32	3.1	15	2.8	79.1	-5.86	-5.36	53.9	118
Blower Outlet		3/27/23 10:36	3	15	2.9	79.1	0.11	N/A	89	N/A
Extraction Well 001	R-1	3/27/23 8:59	2.8	15.3	0	81.9	-1.44	-0.19	51.7	0.6
Extraction Well 002	R-2	3/27/23 9:06	1.3	14.3	5.7	78.7	-1.22	N/A	69.7	N/A
Extraction Well 003	R-3	3/27/23 9:12	5.2	17	0	77.8	-4.1	-0.95	57.2	3.9
Extraction Well 004	R-4	3/27/23 9:40	2.2	17.9	1.2	78.7	-4.32	-1.47	66.2	2.6
Extraction Well 005	R-5	3/27/23 9:44	2.3	19.4	0.6	77.7	-6.03	-0.87	66.1	3.1
Extraction Well 006	R-6	3/27/23 9:55	2.4	10.6	10.2	76.8	-4.33	-1.59	86.2	3.2
Extraction Well 007	R-7	3/27/23 10:03	0	16.5	2.1	81.4	-4.17	-0.85	63	3
Extraction Well 008	R-8	3/27/23 10:09	3.2	19	0	77.8	-3.38	-0.61	56.7	2.5
Extraction Well 009	R-9	3/27/23 8:33	1	13.7	5.1	80.2	-3.38	N/A	92.4	N/A
Extraction Well 010	R-10	3/27/23 8:40	4.4	11	5.1	79.5	-1.25	-0.72	58.4	1.6
Extraction Well 011	R-11	3/27/23 8:48	2.4	11.3	0	86.3	-1.26	-0.62	58.1	1.4
Extraction Well 012	R-12	3/27/23 9:24	6.4	6.3	0	87.3	-2.1	-0.92	55.8	2.4
Extraction Well 013	R-13	3/27/23 9:59	2.5	15.2	1.9	80.4	-4.31	N/A	65.9	N/A
Trench Collector TD-1	TD-1	3/27/23 10:18	1	20.6	0	78.4	-3.44	0.04	55.6	17.2
Trench Collector TR-1	TR-1	3/27/23 9:50	0.1	11	8.7	80.2	-4.27	-0.69	63.7	3.4
Trench Collector TR-2	TR-2	3/27/23 8:29	4.6	17.6	0	77.8	-0.93	N/A	55.4	N/A
Trench Collector TR-3	TR-3	3/27/23 8:54	4.3	16.4	1.1	78.2	-1.18	N/A	55.8	N/A
Trench Collector TR-4	TR-4	3/27/23 9:35	0.6	18.2	0.8	80.4	-4.42	-0.76	61.5	3.7
Trench Collector TR-5	TR-5	3/27/23 9:30	3	16.9	1.9	78.2	-0.82	N/A	53.8	N/A
Trench Collector TR-6	TR-6	3/27/23 9:27	6.5	15.6	0.8	77.1	-1.98	N/A	55.7	N/A
Trench Collector TR-7	TR-7	3/27/23 9:18	7.3	15	1.1	76.6	-4.01	-0.95	51.8	4.4
Gas Probe 1	GP-1	3/23/23 8:46	0	0.7	21.2	78.1	-0.02	N/A	N/A	N/A
Gas Probe 2 Shallow	GP-2S	3/23/23 9:12	0	0.1	22	78.1	-0.02	N/A	N/A	N/A
Gas Probe 2 Middle	GP-2M	3/23/23 9:25	0	0.9	20.8	77.9	-0.17	N/A	N/A	N/A
Gas Probe 2 Deep	GP-2D	3/23/23 9:38	0	1.3	19.4	78.3	-0.3	N/A	N/A	N/A
Gas Probe 3	GP-3	3/23/23 10:06	0	1	21.2	79.3	-0.02	N/A	N/A	N/A
Gas Probe 4	GP-4	3/23/23 10:32	0	0.9	21	77.8	-0.03	N/A	N/A	N/A
Gas Probe 5	GP-5	3/23/23 11:10	0	0.4	21.3	78.1	-0.03	N/A	N/A	N/A
Gas Probe 6	GP-6	3/23/23 11:24	0	3.6	16.9	78.3	0.03	N/A	N/A	N/A
Gas Probe 7	GP-7	3/23/23 10:49	0	1.2	20.6	79.5	0.01	N/A	N/A	N/A

Notes

System pressure represents the vacuum available at the wellhead. Static pressure represents the equilibrium downhole pressure.

Flow rates measured using orifice plates (where installed).

N/A = indicates parameter not measured.

°F = degrees Fahrenheit

"H_2O = inches water column

SCFM = standard cubici feet per minute

Table A-2. Landfill Gas Data, Second Quarter, 2023

Project No. 160423, Hansville Landfill, Hansville, Washington

Location	Map ID	Date/Time	Methane CH_4 (% by vol)	Carbon Dioxide CO_2 (% by vol)	Oxygen O_2 (% by vol)	Balance Bal (% by vol)	System Pressure ("H_2O)	Static Pressure ("H_2O)	Wellhead Temperature (°F)	Flow Rate (SCFM)
Blower Inlet		6/22/23 12:04	3.1	14.9	2.8	79.2	-6.5	-6.39	70	116.8
Blower Outlet		6/22/23 12:09	3	14.9	2.7	79.4	0.14	N/A	106.5	N/A
Extraction Well 001	R-1	6/22/23 13:46	2.5	14.4	0.2	82.9	-1.1	-0.01	70.8	0.5
Extraction Well 002	R-2	6/22/23 14:03	1.2	13	5.6	80.2	-0.96	N/A	81.9	N/A
Extraction Well 003	R-3	6/22/23 14:15	5.5	15	0	79.5	-5.98	-1.07	76.3	3.4
Extraction Well 004	R-4	6/22/23 14:29	2.2	16.4	1.1	80.3	-5.83	-1.31	76	3.3
Extraction Well 005	R-5	6/22/23 14:41	2.3	17.8	0.5	79.4	-3.76	-0.73	79.4	2.7
Extraction Well 006	R-6	6/22/23 15:04	2.3	9.4	10.1	78.2	-4.34	-1.43	87.7	3.1
Extraction Well 007	R-7	6/22/23 15:13	0	14.5	2.6	82.9	-3.8	-0.6	71.5	2.8
Extraction Well 008	R-8	6/22/23 13:18	3.3	17.9	0.1	78.7	-3.27	-0.51	71.5	2.5
Extraction Well 009	R-9	6/22/23 13:30	1.1	12.7	4.9	81.3	-2.08	N/A	104.5	N/A
Extraction Well 010	R-10	6/22/23 13:39	3.8	9.8	5.4	81	-1.2	-0.46	71.8	1.5
Extraction Well 011	R-11	6/22/23 13:57	2.5	10.6	0	86.9	-0.96	-0.45	78.7	1.4
Extraction Well 012	R-12	6/22/23 15:32	5.4	5.5	0.1	89	-1.53	-0.54	73.3	2
Extraction Well 013	R-13	6/22/23 15:37	2.3	14.1	1.8	81.8	-3.56	N/A	74.8	N/A
Trench Collector TD-1	TD-1	6/22/23 13:05	1.1	20.1	0.1	78.7	-4.59	0.02	71.3	14.7
Trench Collector TR-1	TR-1	6/22/23 14:55	0	10.2	8.2	81.6	-3.7	-0.58	85.3	2.8
Trench Collector TR-2	TR-2	6/22/23 13:26	4.5	16.9	0.8	77.8	-0.99	N/A	63.5	N/A
Trench Collector TR-3	TR-3	6/22/23 13:50	4.8	17.4	0.4	77.4	-1	N/A	67	N/A
Trench Collector TR-4	TR-4	6/22/23 14:35	0.9	18.9	0.1	80.1	-3.72	-0.59	75.4	2.7
Trench Collector TR-5	TR-5	6/22/23 15:26	4	16.2	1.7	78.1	-0.6	N/A	70.5	N/A
Trench Collector TR-6	TR-6	6/22/23 15:20	7	14.5	0.8	77.7	-0.91	N/A	66.6	N/A
Trench Collector TR-7	TR-7	6/22/23 14:22	7.8	14.7	0.7	76.8	-5.4	-0.72	78.4	3.4
Gas Probe 1	GP-1	6/22/23 8:58	0	1.2	19.2	79.6	0.03	N/A	N/A	N/A
Gas Probe 2 Shallow	GP-2S	6/22/23 9:30	0	0.4	20.6	79.6	0.03	N/A	N/A	N/A
Gas Probe 2 Middle	GP-2M	6/22/23 9:36	0	1.1	19.2	79	0.35	N/A	N/A	N/A
Gas Probe 2 Deep	GP-2D	6/22/23 9:42	0	1.5	17.9	79.7	0.51	N/A	N/A	N/A
Gas Probe 3	GP-3	6/22/23 10:04	0	1.1	20.4	80.6	0.05	N/A	N/A	N/A
Gas Probe 4	GP-4	6/22/23 10:40	0	1.6	19.6	78.5	0.05	N/A	N/A	N/A
Gas Probe 5	GP-5	6/22/23 11:40	0	0.6	20	78.8	0.06	N/A	N/A	N/A
Gas Probe 6	GP-6	6/22/23 12:36	0	3.6	15	79.4	0.14	N/A	N/A	N/A
Gas Probe 7	GP-7	6/22/23 11:04	0	2.5	18.7	81.4	0.02	N/A	N/A	N/A

Notes

System pressure represents the vacuum available at the wellhead. Static pressure represents the equilibrium downhole pressure.

Flow rates measured using orifice plates (where installed).

N/A = indicates parameter not measured.

°F = degrees Fahrenheit

"H_2O = inches water column

SCFM = standard cubici feet per minute

Table A-3. Landfill Gas Data, Third Quarter, 2023

Project No. 160423, Hansville Landfill, Hansville, Washington

Location	Map ID	Date/Time	Methane CH_4 (% by vol)	Carbon Dioxide CO_2 (% by vol)	Oxygen O_2 (% by vol)	Balance Bal (% by vol)	System Pressure ("H_2O)	Static Pressure ("H_2O)	Wellhead Temperature (°F)	Flow Rate (SCFM)
Blower Inlet		9/21/23 8:32	3	15.4	3.1	78.5	-8.45	-6.59	63.8	119.9
Blower Outlet		9/21/23 8:37	3.1	15.5	3	78.4	0.12	N/A	91.1	N/A
Extraction Well 001	R-1	9/27/23 8:00	3.8	15.7	0	80.5	-2.51	-1.27	57.2	0
Extraction Well 002	R-2	9/27/23 8:14	1.2	13.9	6	78.9	-7.51	N/A	71	N/A
Extraction Well 003	R-3	9/27/23 8:32	4.6	17.3	0	78.1	-5.54	-5.69	59.7	0
Extraction Well 004	R-4	9/27/23 8:59	2.2	17.4	1.2	79.2	-5.76	-5.63	71.8	0
Extraction Well 005	R-5	9/27/23 10:15	2	18.7	0.9	78.4	-5.78	-5.56	72.5	0
Extraction Well 006	R-6	9/27/23 10:07	2.2	10.2	10.6	77	-7.1	-6.53	84.3	0
Extraction Well 007	R-7	9/27/23 9:54	0	15.6	2.8	81.6	-6.03	-6.15	64.5	0
Extraction Well 008	R-8	9/27/23 7:13	3.4	19.6	1.3	75.7	-4.14	-3.04	57.2	0
Extraction Well 009	R-9	9/21/23 14:06	1	13	5.1	80.9	-2.68	N/A	108.4	N/A
Extraction Well 010	R-10	9/27/23 7:51	4.4	10.7	5.8	79.1	-2.5	-2.67	59.4	0
Extraction Well 011	R-11	9/27/23 8:23	2.2	12.8	0	85	-2.44	-2.38	59.2	0
Extraction Well 012	R-12	9/27/23 9:33	5.9	7.1	0	87	-3.77	-3.81	62.6	0
Extraction Well 013	R-13	9/27/23 9:45	2.5	15.1	2.3	80.1	-5.75	N/A	69.9	N/A
Trench Collector TD-1	TD-1	9/27/23 10:42	2.1	21.6	0	76.3	0	-0.29	0	16.4
Trench Collector TR-1	TR-1	9/27/23 10:01	0.1	11.7	8	80.2	-5.86	-5.98	75	0
Trench Collector TR-2	TR-2	9/27/23 7:22	5.4	18.9	0.9	74.8	-2.29	N/A	60.5	N/A
Trench Collector TR-3	TR-3	9/27/23 8:05	3.5	19	0.3	77.2	-2.2	N/A	65.8	N/A
Trench Collector TR-4	TR-4	9/27/23 8:51	1.4	20.2	0	78.4	-5.76	-5.54	65.4	0
Trench Collector TR-5	TR-5	9/27/23 9:26	3.9	18.9	0.7	76.5	-3.04	N/A	64.5	N/A
Trench Collector TR-6	TR-6	9/27/23 9:36	4.9	18.4	0.5	76.2	-2.84	N/A	64.2	N/A
Trench Collector TR-7	TR-7	9/27/23 8:42	8.4	16.9	0.1	74.6	-5.41	-5.42	59.6	0
Gas Probe 1	GP-1	9/21/23 9:36	0	1	20.3	78.7	0.02	N/A	N/A	N/A
Gas Probe 2 Shallow	GP-2S	9/21/23 10:10	0	0.1	21.1	78.8	0	N/A	N/A	N/A
Gas Probe 2 Middle	GP-2M	9/21/23 10:18	0	1.1	19.6	79.3	-0.01	N/A	N/A	N/A
Gas Probe 2 Deep	GP-2D	9/21/23 10:26	0	1.4	18.2	80.4	-0.01	N/A	N/A	N/A
Gas Probe 3	GP-3	9/21/23 12:42	0	1.4	20.1	78.5	-0.02	N/A	N/A	N/A
Gas Probe 4	GP-4	9/21/23 11:10	0	1.2	20	78.8	-0.08	N/A	N/A	N/A
Gas Probe 5	GP-5	9/21/23 13:04	0	0.6	20.3	79.1	0.03	N/A	N/A	N/A
Gas Probe 6	GP-6	9/21/23 13:50	0	3.5	15	81.5	0.07	N/A	N/A	N/A
Gas Probe 7	GP-7	9/21/23 11:42	0	3	18.5	78.5	0.03	N/A	N/A	N/A

Notes

System pressure represents the vacuum available at the wellhead. Static pressure represents the equilibrium downhole pressure.

Flow rates measured using orifice plates (where installed).

N/A = indicates parameter not measured.

°F = degrees Fahrenheit

"H_2O = inches water column

SCFM = standard cubici feet per minute

Table A-4. Landfill Gas Data, Fourth Quarter, 2023

Project No. 160423, Hansville Landfill, Hansville, Washington

Location	Map ID	Date	Methane CH4 (% by vol)	Carbon Dioxide CO2 (% by vol)	Oxygen O2 (% by vol)	Balance Bal (% by vol)	System Pressure ("H_2O)	Static Pressure ("H_2O)	Wellhead Temperature (°F)	Flow Rate (SCFM)
Blower Inlet		12/21/23 18:02	2.8	15.6	3.1	78.5	-7.67	-6.22	47.7	120.3
Blower Outlet		12/21/23 18:13	2.8	15.8	3.1	78.3	0.08	N/A	79.6	N/A
Extraction Well 001	R-1	12/21/23 16:07	2.5	16.4	0.1	81	-1.52	-0.31	50.1	0.5
Extraction Well 002	R-2	12/21/23 16:18	1.1	13.9	6.8	78.2	-1.55	N/A	70.7	N/A
Extraction Well 003	R-3	12/21/23 16:29	4.6	18	0	77.4	-5.44	-0.94	53.1	4.6
Extraction Well 004	R-4	12/21/23 16:52	2.3	18	1.6	78.1	-5.03	-1.59	68.4	3.6
Extraction Well 005	R-5	12/21/23 17:03	2	19.5	0.9	77.6	-4.31	-1.01	74.2	3
Extraction Well 006	R-6	12/21/23 17:08	2.2	10.2	11.5	76.1	-4.8	-1.79	83.1	3.5
Extraction Well 007	R-7	12/21/23 17:23	0	16.1	3.4	80.5	-4.41	-1.11	62.8	3
Extraction Well 008	R-8	12/21/23 15:41	3.1	19.4	0.2	77.3	-3.48	-1.32	55.7	2.7
Extraction Well 009	R-9	12/21/23 15:53	1	13.3	6.5	79.2	-3.31	N/A	106.9	N/A
Extraction Well 010	R-10	12/21/23 15:58	4	10.8	6.4	78.8	-0.98	-0.93	56.2	1
Extraction Well 011	R-11	12/21/23 16:14	2.1	14.1	0	83.8	-1.41	-0.76	48.9	1.8
Extraction Well 012	R-12	12/21/23 16:34	5.1	8.5	0	86.4	-2.33	-1	50	2.2
Extraction Well 013	R-13	12/21/23 17:27	2.2	15.6	2.6	79.6	-4.78	N/A	66.2	N/A
Trench Collector TD-1	TD-1	12/21/23 15:29	1.4	20.9	0.1	77.6	-5.08	-5.02	52.1	0
Trench Collector TR-1	TR-1	12/21/23 17:18	0.1	10.4	10.5	79	-4.83	-0.9	70.5	3.1
Trench Collector TR-2	TR-2	12/21/23 15:48	4.3	17.4	1.3	77	-1.7	N/A	55.9	N/A
Trench Collector TR-3	TR-3	12/21/23 16:03	3.8	17.3	1.2	77.7	-1.47	N/A	57	N/A
Trench Collector TR-4	TR-4	12/21/23 16:57	0.9	18.7	0.6	79.8	-6.82	-0.89	58.4	3.8
Trench Collector TR-5	TR-5	12/21/23 16:42	2.6	16.2	3.1	78.1	-0.92	N/A	49.5	N/A
Trench Collector TR-6	TR-6	12/21/23 16:38	4.4	15.8	2	77.8	-2.06	N/A	55.7	N/A
Trench Collector TR-7	TR-7	12/21/23 16:47	7.7	14.9	1	76.4	-4.63	-1.02	50.5	4.4
Gas Probe 1	GP-1	12/21/23 8:35	0.0	0.7	20.8	78.5	-0.12	N/A	N/A	N/A
Gas Probe 2 Shallow	GP-2S	12/21/23 9:07	0.0	0.1	21.5	78.5	0.01	N/A	N/A	N/A
Gas Probe 2 Middle	GP-2M	12/21/23 9:13	0.0	0.9	20.5	78.4	-0.32	N/A	N/A	N/A
Gas Probe 2 Deep	GP-2D	12/21/23 9:21	0.0	1.4	18.9	78.6	-0.5	N/A	N/A	N/A
Gas Probe 3	GP-3	12/21/23 9:52	0.0	1.2	20.6	79.7	-0.03	N/A	N/A	N/A
Gas Probe 4	GP-4	12/21/23 10:30	0.0	2	19.8	78.2	0	N/A	N/A	N/A
Gas Probe 5	GP-5	12/21/23 11:37	0.0	0.7	21	78.2	0.01	N/A	N/A	N/A
Gas Probe 6	GP-6	12/21/23 12:10	0.0	3.9	16.9	78.3	0.05	N/A	N/A	N/A
Gas Probe 7	GP-7	12/21/23 10:58	0.0	3.3	18.6	79.2	0.04	N/A	N/A	N/A

Notes

System pressure represents the vacuum available at the wellhead. Static pressure represents the equilibrium downhole pressure.

Flow rates measured using orifice plates (where installed).

N/A = indicates parameter not measured.

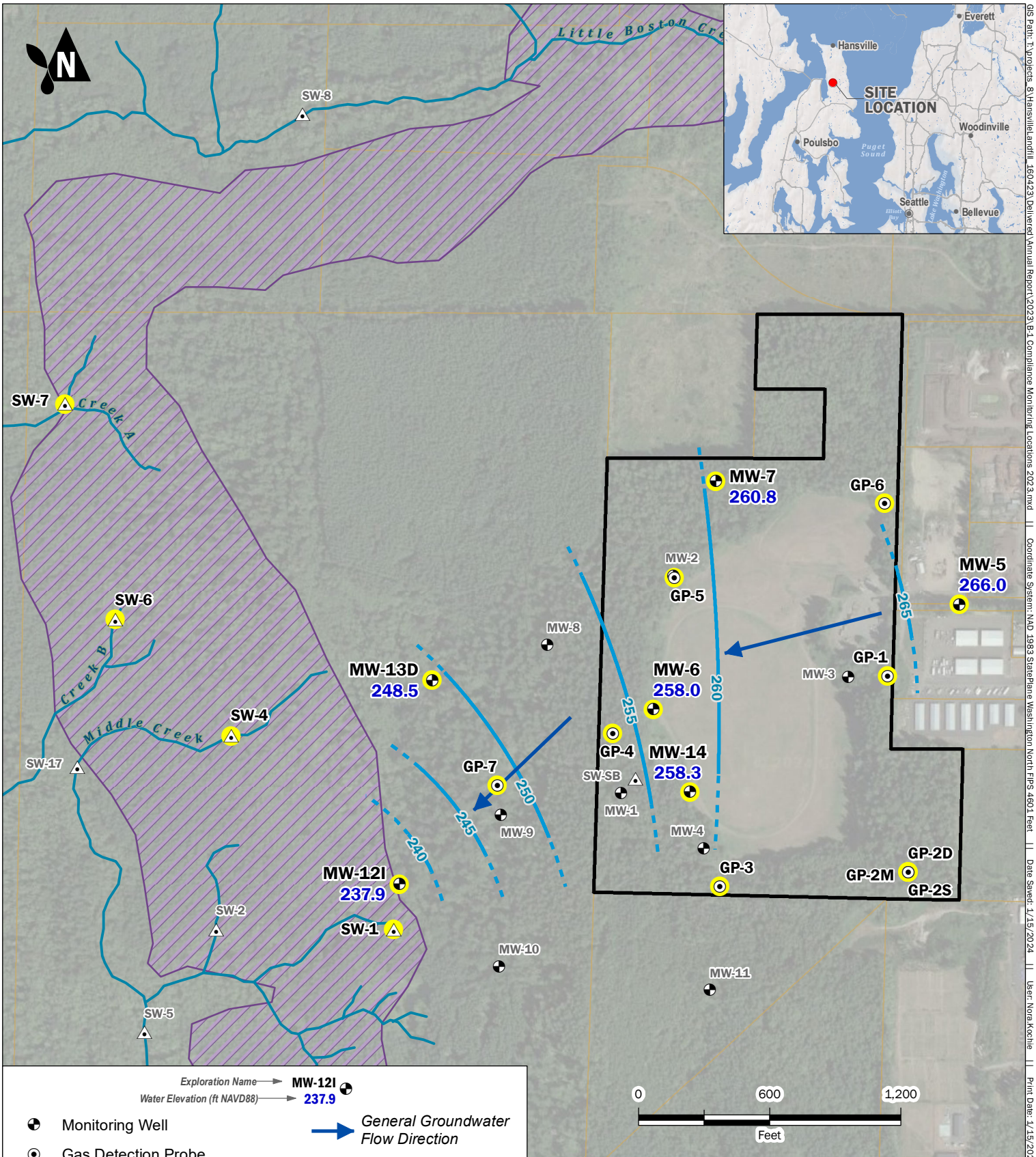
°F = degrees Fahrenheit

"H_2O = inches water column

SCFM = standard cubici feet per minute

APPENDIX B

Water Quality Results



Exploration Name → MW-12I
Water Elevation (ft NAVD88) → 237.9

- Monitoring Well
- Gas Detection Probe
- Surface Water Station
- Compliance Monitoring Location
- Water Elevation Contour (ft NAVD88, dashed where inferred) *Measured October 18, 2023*
- *General Groundwater Flow Direction*
- Approximate Area of Groundwater Discharge from Upper Aquifer
- Stream
- Landfill Boundary
- Tax Parcel

Note: Vertical datum is NAVD88. Approximate area of groundwater discharge from upper aquifer delineation from Remedial Investigation Report (Parametrix, 2006).

Compliance Monitoring Locations

2023 Annual Environmental Monitoring Report
Hansville Landfill
Kitsap County, Washington

Aspect Consulting	JAN-2024	BY: CMT / NLK	FIGURE NO. B-1
	PROJECT NO. 160423	REVISED BY: ---	

GIS Path: T:\projects_8\Hansville\Landfill_160423\Delivered\Annual Report\2023\B-1 Compliance Monitoring Locations 2023.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 1/15/2024 || User: Nora.Kochie || Print Date: 1/15/2024

Table B-1. Water Level Elevations

Project No. 160423, Hansville Landfill, Hansville, Washington

Well	Ground Elevation (ft NAVD88)	Top of Casing Elevation (ft NAVD88)	Screen Elevation (ft NAVD88)		Depth to Water (ft)	Water Level Elevation (ft NAVD88)
			Top	Bottom		
MW-5	363.7	366.9	244	234	100.43	266.5
MW-6	332.0	332.7	260	245	74.00	258.7
MW-7	344.3	346.0	259	244	87.97	258.0
MW-12I	245.6	248.1	217	207	9.75	238.4
MW-13D	258.1	260.4	205	195	11.00	249.4
MW-14	338.6	341.1	262	247	81.11	260.0

Notes

Depths to water collected January 25, 2023.

Elevations relative to North American Vertical Datum of 1988 (NAVD88).

Well	Ground Elevation (ft NAVD88)	Top of Casing Elevation (ft NAVD88)	Screen Elevation (ft NAVD88)		Depth to Water (ft)	Water Level Elevation (ft NAVD88)
			Top	Bottom		
MW-5	363.7	366.9	244	234	100.48	266.4
MW-6	332.0	332.7	260	245	74.20	258.5
MW-7	344.3	346.0	259	244	85.03	261.0
MW-12I	245.6	248.1	217	207	9.76	238.3
MW-13D	258.1	260.4	205	195	10.93	249.5
MW-14	338.6	341.1	262	247	81.70	259.4

Notes

Depths to water collected April 19, 2023.

Elevations relative to North American Vertical Datum of 1988 (NAVD88).

Table B-1. Water Level Elevations

Project No. 160423, Hansville Landfill, Hansville, Washington

Well	Ground Elevation (ft NAVD88)	Top of Casing Elevation (ft NAVD88)	Screen Elevation (ft NAVD88)		Depth to Water (ft)	Water Level Elevation (ft NAVD88)
			Top	Bottom		
MW-5	363.7	366.9	244	234	100.45	266.5
MW-6	332.0	332.7	260	245	74.35	258.4
MW-7	344.3	346.0	259	244	84.85	261.2
MW-12I	245.6	248.1	217	207	10.11	238.0
MW-13D	258.1	260.4	205	195	11.40	249.0
MW-14	338.6	341.1	262	247	82.33	258.8

Notes

Depths to water collected July 19, 2023.

Elevations relative to North American Vertical Datum of 1988 (NAVD88).

Well	Ground Elevation (ft NAVD88)	Top of Casing Elevation (ft NAVD88)	Screen Elevation (ft NAVD88)		Depth to Water (ft)	Water Level Elevation (ft NAVD88)
			Top	Bottom		
MW-5	363.7	366.9	244	234	100.86	266.0
MW-6	332.0	332.7	260	245	74.70	258.0
MW-7	344.3	346.0	259	244	85.25	260.8
MW-12I	245.6	248.1	217	207	10.21	237.9
MW-13D	258.1	260.4	205	195	11.91	248.5
MW-14	338.6	341.1	262	247	82.82	258.3

Notes

Depths to water collected October 18, 2023.

Elevations relative to North American Vertical Datum of 1988 (NAVD88).

Table B-2. Groundwater Quality Results

Project No. 160423, Hansville Landfill, Hansville, Washington

Parameter	Units	Location / Date / Site Cleanup	MW-5 01/25/2023	MW-5 04/19/2023	MW-5 07/19/2023	MW-5 10/18/2023	MW-6 01/25/2023	MW-6 04/19/2023	MW-6 07/19/2023	MW-6 10/18/2023	MW-7 01/25/2023	MW-7 04/19/2023	MW-7 07/19/2023	MW-7 10/18/2023	MW-12I 01/25/2023
Field Parameters															
Temperature	deg C		**9.5**	**9.7**	**11.0**	**11**	**11.5**	**12.3**	**13.1**	**13.23**	**9.1**	**8.9**	**10.2**	**10.3**	**8.2**
Specific Conductance	uS/cm		**162.4**	**130.5**	**170.5**	**169.4**	**321**	**267.3**	**195.3**	**211.68**	**272.4**	**224.3**	**297.2**	**294.8**	**217.1**
Dissolved Oxygen	mg/L		**8.39**	**8.75**	**9.08**	**10.54**	**0.44**	**0.18**	**0.26**	**0.23**	**0.46**	**0.38**	**0.32**	**0.5**	**0.49**
pH	pH units		**7.26**	**6.82**	**7.21**	**7.26**	**6.92**	**7.09**	**6.76**	**7.33**	**6.43**	**6.388**	**6.29**	**6.36**	**6.65**
Redox	mV		**26.8**	**56.3**	**46.3**	**55.7**	86.8	**64.7**	**68.2**	**92.2**	**48.5**	**63**	**62.7**	**65.7**	**80.8**
Turbidity	NTU		**8.7**	**0.84**	**0.22**	**0.07**	--	**0.02**	**1.56**	0	**2.02**	**5.24**	**1.51**	**2.94**	--
Conventionals															
Bicarbonate	mg/L		**76**	**73**	**76**	**80**	**140**	**150**	**120**	**110**	**160**	**150**	**170**	**170**	**110**
Carbonate	mg/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Alkalinity	mg/L		**76**	**73**	**76**	**80**	**140**	**150**	**120**	**110**	**160**	**150**	**170**	**170**	**110**
Ammonia (as N)	mg/L		< 0.03 U	**0.094**	< 0.030 U	< 0.03 U	< 0.03 U	0.034	< 0.030 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.030 U	0.037 J	< 0.03 U
Chloride	mg/L		< 3 U	< 3 U	< 3.0 U	< 3 U	**6.5**	**4.8**	**4.8**	**4.8**	< 3 U	< 3 U	< 3.0 U	< 3 U	**5.8**
Nitrate (as N)	mg/L		**3.44**	**2.94**	**2.81**	**3.21**	**3.4**	**4.58**	**1.5**	**0.172**	**0.719**	**0.652**	**0.76**	**1.09**	< 0.1 U
Nitrite (as N)	mg/L		< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	**0.216**	< 0.1 U	**0.116**	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Orthophosphate	mg/L		< 0.1 UJ	< 0.1 U	**0.3 J**	< 0.1 UJ	< 0.1 U	< 0.1 U	**0.1**	< 0.1 UJ	< 0.1 UJ	< 0.1 U	**0.2**	< 0.1 UJ	< 0.1 U
Sulfate	mg/L		**8.7**	**7**	**8.3**	**7.9**	**25**	**21**	**20**	**9.0**	**7.1**	**6**	**7.7**	**8.1**	**9.3**
Total Organic Carbon	mg/L		< 1 U	< 1 U	< 1.0 U	< 1 U	**1.2**	**1.1**	**1.0**	< 1 U	**1.4**	**1.4**	**1.6**	**1.5**	**1.9**
Dissolved Metals															
Arsenic	ug/L	5	**1.8**	**1.67**	**1.6**	**1.87**	**1.93**	**1.55**	**1.56**	**1.78**	**1.38**	**1.11**	**0.954**	**1.21**	**2.07**
Manganese	ug/L	2240	**9.1**	< 1 U	< 1.0 U	< 1 U	**320**	**380**	**270**	**180**	**1.1**	**1.2**	**1.3**	**1.3**	**42**
Volatile Organic Compounds (VOCs)															
1,2-Dichloroethene	ug/L		< 2 U	--	--	--	< 2 U	--	--	--	< 2 U	--	--	--	< 2 U
cis-1,2-Dichloroethene (cDCE)	ug/L		< 1 U	--	--	--	< 1 U	--	--	--	< 1 U	--	--	--	< 1 U
Vinyl Chloride	ug/L	0.025	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	**0.04**	< 0.02 U	**0.034**	**0.053**	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	**0.023**

Notes

Bold text = Analyte was detected
Shaded Cell = Result exceeded Site Cleanup level
U = Not detected at or above the Reporting Limit shown
J = Result value estimated
(--) = not analyzed
mg/L = milligram per liter
mV = millivolts
µS/cm = microSiemens per centimeter
deg C = degrees Celcius
NTU = Nephelometric Turbidity Units
µg/L = microgram per liter

Table B-2. Groundwater Quality Results

Project No. 160423, Hansville Landfill, Hansville, Washington

Parameter	Units	Site Cleanup	Location Date MW-12I 04/19/2023	MW-12I 07/19/2023	MW-12I 10/18/2023	MW-13D 01/25/2023	MW-13D 04/19/2023	MW-13D 07/19/2023	MW-13D 10/18/2023	MW-14 01/25/2023	MW-14 04/19/2023	MW-14 07/19/2023	MW-14 10/18/2023
Field Parameters													
Temperature	deg C		**9.5**	**10.9**	**11**	**8.3**	**10.1**	**11.6**	**11**	--	**10.8**	**12.9**	**12**
Specific Conductance	uS/cm		**159**	**166.7**	**227.75**	**178.6**	**130**	**131.4**	**159.33**	--	**174.1**	**182.4**	**161.5**
Dissolved Oxygen	mg/L		**0.2**	**0.25**	**0.24**	**1.42**	**0.25**	**0.3**	**0.12**	--	**0.25**	**0.14**	**0.29**
pH	pH units		**7.01**	**6.7**	**7.28**	**7.27**	**7.38**	**7.11**	**7.78**	--	**7.11**	**7.4**	**7.35**
Redox	mV		**51.2**	**64.9**	**144.5**	**93.9**	**58.4**	**67.5**	**90.6**	--	**50.7**	**53.8**	**53.5**
Turbidity	NTU		**3.47**	**1.68**	**1.3**	--	**3.92**	**2.15**	**3.41**	--	**3.3**	0	**2.22**
Conventionals													
Bicarbonate	mg/L		**99**	**100**	**120**	**74**	**71**	**72**	**74**	**110**	**110**	**96**	**90**
Carbonate	mg/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Alkalinity	mg/L		**99**	**100**	**120**	**74**	**71**	**72**	**74**	**110**	**110**	**96**	**90**
Ammonia (as N)	mg/L		< 0.03 U	< 0.030 U	< 0.03 U	< 0.03 U	0.03	< 0.030 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.030 U	< 0.03 U
Chloride	mg/L		**5.8**	**12**	**13**	**5.2**	**4.8**	**6.0**	**5.51 J**	**4.5**	**5.7**	**4.8**	**4.0**
Nitrate (as N)	mg/L		< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	**0.121**	< 0.1 U	**0.232**
Nitrite (as N)	mg/L		< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Orthophosphate	mg/L		< 0.1 U	< 0.1 U	< 0.1 UJ	< 0.1 UJ	< 0.1 U	< 0.1 U	< 0.1 UJ	< 0.1 UJ	< 0.1 U	< 0.1 U	< 0.1 UJ
Sulfate	mg/L		**8**	**11**	**12**	**16**	**15**	**17**	**16.1**	**9.5**	**9.2**	**9.8**	**9.2**
Total Organic Carbon	mg/L		**1.9**	**2.1**	**2.0**	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	**1.1**	**1.6**	**2.0**
Dissolved Metals													
Arsenic	ug/L	5	**1.91**	**1.95**	**2.44**	**4.77**	**4.74**	**4.56**	**5.4**	**10.9**	**12.9**	**12.3**	**14.1**
Manganese	ug/L	2240	**45**	**51**	**62**	**5.3**	**5.4**	**5.7**	**5.7**	**1800**	**1400**	**930**	**880**
Volatile Organic Compounds (VOCs)													
1,2-Dichloroethene	ug/L		--	--	--	< 2 U	--	--	--	**2.3**	--	--	--
cis-1,2-Dichloroethene (cDCE)	ug/L		--	--	--	< 1 U	--	--	--	**2.3**	--	--	--
Vinyl Chloride	ug/L	0.025	**0.029**	**0.056**	**0.12**	< 1 U	< 0.02 U	< 0.020 U	< 0.02 U	**0.071**	**0.034**	**0.033**	**0.026**

Notes

Bold text = Analyte was detected
Shaded Cell = Result exceeded Site Cleanup level
U = Not detected at or above the Reporting Limit shown
J = Result value estimated
(--) = not analyzed
mg/L = milligram per liter
mV = millivolts
µS/cm = microSiemens per centimeter
deg C = degrees Celcius
NTU = Nephelometric Turbidity Units
µg/L = microgram per liter

Table B-3. Surface Water Quality Results

Project No. 160423, Hansville Landfill, Hansville, Washington

		Location	SW-1	SW-1	SW-1	SW-1	SW-4	SW-4	SW-4	SW-4	SW-6	SW-6	SW-6	SW-6	SW-7
		Date	01/25/2023	04/19/2023	07/19/2023	10/18/2023	01/25/2023	04/19/2023	07/19/2023	10/18/2023	01/25/2023	04/19/2023	07/19/2023	10/18/2023	01/25/2023
Parameter	**Units**	**Site Cleanup**													
Field Parameters															
Temperature	deg C		**8.0**	**9.7**	**12.6**	**11.6**	**9.9**	**8.5**	**13**	**12.2**	**7.1**	**7.4**	**15.5**	**13.3**	**7.5**
Specific Conductance	uS/cm		**264.6**	**154.5**	**211.7**	**178.2**	**222.3**	**219.2**	**366.7**	**296.2**	**91.4**	**75**	**139.4**	**142.5**	**123.2**
Dissolved Oxygen	mg/L		**10.87**	**10.71**	**11.57**	**10.05**	**7.78**	**11.02**	**10.32**	**12.16**	**10.44**	**10.53**	**8.96**	**11.18**	**11.65**
pH	pH units		**7.69**	**6.84**	**7.0**	**6.95**	**7.22**	**6.98**	**7.49**	**7.7**	**7.37**	**7.15**	**7.48**	**7.75**	**7.67**
Redox	mV		**27.7**	**54.9**	**59.1**	**69.6**	**3.0**	**72.9**	**64.9**	**70.2**	**21.5**	**55**	**44.6**	**46.7**	**35.9**
Turbidity	NTU		**1.4**	**1.07**	0	0	**3.7**	**4.11**	**0.4**	0	**13.6**	**17.9**	**33.5**	**46.7**	**9.23**
Conventionals															
Bicarbonate	mg/L		**100**	**76**	**80**	**83**	**130**	**130**	**160**	**160**	**43**	**44**	**70**	**68**	**55**
Carbonate	mg/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Alkalinity	mg/L		**100**	**76**	**80**	**83**	**130**	**130**	**160**	**160**	**43**	**44**	**70**	**68**	**55**
Ammonia (as N)	mg/L		< 0.03 U	< 0.03 U	< 0.030 U	< 0.03 U	< 0.03 U	**0.032**	< 0.030 U	0.038 J	< 0.03 U	0.036	< 0.030 U	0.046 J	< 0.03 U
Chloride	mg/L		**9.1**	**5.9**	**7.9**	**5.5**	**11**	**9.5**	**16**	**13**	**3.7**	**3**	**4.4**	**4.5**	**3.8**
Nitrate (as N)	mg/L		**3.7**	**3.46**	**3.52**	**2.76**	**0.889**	**0.913**	**0.964**	**0.696**	**0.12**	< 0.1 U	< 0.1 U	**0.138**	**1.29**
Nitrite (as N)	mg/L		< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Orthophosphate	mg/L		< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 UJ	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 UJ	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 UJ	< 0.1 U
Sulfate	mg/L		**17**	**13**	**16**	**12**	**19**	**18**	**29**	**22**	**5.7**	< 5 U	**6.4**	**8.2**	**8.6**
Total Organic Carbon	mg/L		**1.8**	**2.2**	**1.6**	**1.9**	**9.8**	**9.8**	**2.8**	**9.9**	**22**	**26**	**8.1**	**17**	**10**
Dissolved Metals															
Arsenic	ug/L	5	**0.931**	**1.22**	**1.12**	**1.52**	**1.71**	**1.52**	**1.49**	**1.92**	**2.52**	**3.37**	**3.32**	**3.08**	**1.37**
Manganese	ug/L	2240	< 1 U	< 1 U	< 1.0 U	< 1 U	**61**	**41**	**30**	**24**	**35**	**34**	**36**	**47**	**5**
Volatile Organic Compounds (VOCs)															
1,2-Dichloroethene	ug/L		< 2 U	--	--	--	< 2 U	--	--	--	< 2 U	--	--	--	< 2 U
cis-1,2-Dichloroethene (cDCE)	ug/L		< 1 U	--	--	--	< 1 U	--	--	--	< 1 U	--	--	--	< 1 U
Vinyl Chloride	ug/L	0.025	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.020 U	< 0.02 U	< 0.02 U

Notes

Bold text = Analyte was detected
Shaded Cell = Result exceeded Site Cleanup level
U = Not detected at or above the Reporting Limit shown
J = Result value estimated
mg/L = milligram per liter
mV = millivolts
µS/cm = microSiemens per centimeter
deg C = degrees Celcius
NTU = Nephelometric Turbidity Units
µg/L = microgram per liter
(--) = not analyzed

Table B-3. Surface Water Quality Results

Project No. 160423, Hansville Landfill, Hansville, Washington

Parameter	Units	Location / Date / Site Cleanup	SW-7 04/19/2023	SW-7 07/19/2023	SW-7 10/18/2023
Field Parameters					
Temperature	deg C		**9.0**	**15.9**	**13.8**
Specific Conductance	uS/cm		**102.8**	**166.5**	**153.3**
Dissolved Oxygen	mg/L		**11.58**	**10.26**	**12.14**
pH	pH units		**7.22**	**7.52**	**7.66**
Redox	mV		**41.8**	**59**	**53.1**
Turbidity	NTU		**6.98**	**3.1**	0
Conventionals					
Bicarbonate	mg/L		**55**	**74**	**81**
Carbonate	mg/L		< 10 U	< 10 U	< 10 U
Alkalinity	mg/L		**55**	**74**	**81**
Ammonia (as N)	mg/L		< 0.03 U	< 0.030 U	**0.073 J**
Chloride	mg/L		**3**	**4.1**	< 3 U
Nitrate (as N)	mg/L		**0.892**	**0.277**	**0.237**
Nitrite (as N)	mg/L		< 0.1 U	< 0.1 U	< 0.1 U
Orthophosphate	mg/L		< 0.1 U	< 0.1 U	< 0.1 UJ
Sulfate	mg/L		**7.5**	**8.4**	< 5 U
Total Organic Carbon	mg/L		**9.4**	**5.7**	**11**
Dissolved Metals					
Arsenic	ug/L	5	**1.33**	**2.12**	**2.17**
Manganese	ug/L	2240	**5**	**38**	**7.8**
Volatile Organic Compounds (VOCs)					
1,2-Dichloroethene	ug/L		--	--	--
cis-1,2-Dichloroethene (cDCE)	ug/L		--	--	--
Vinyl Chloride	ug/L	0.025	< 0.02 U	< 0.020 U	< 0.02 U

Notes

Bold text = Analyte was detected
Shaded Cell = Result exceeded Site Cleanup leve
U = Not detected at or above the Reporting Limit
J = Result value estimated
mg/L = milligram per liter
mV = millivolts
µS/cm = microSiemens per centimeter
deg C = degrees Celcius
NTU = Nephelometric Turbidity Units
µg/L = microgram per liter
(--) = not analyzed

APPENDIX C

Groundwater Statistics and Time-Series Graphs

Table C-1. Statistical Analysis

Project 160423, Hansville Landfill, Hansville, WA

Dissolved Arsenic Statistical Results

Well	Statistical Trend[1]	Mann-Kendall Test[2]				Sen's Slope	
		Test Value, Z	Critical Value	Number of data points, n	Statistical Significance	(mg/L per day)	(mg/L per year)
MW-5	--[3]	--					
MW-6	--	--	--	--	--	--	--
MW-7	--	--	--	--	--	--	--
MW-12I	--	--	--	--	--	--	--
MW-13D	Increasing	8.1	1.96	67	Yes	4.7E-07	1.72E-04
MW-14	Decreasing	-8.2	-1.96	67	Yes	-2.6E-06	-0.001

Vinyl Chloride Statistical Results

Well	Statistical Trend[1]	Mann-Kendall Test[2]				Sen's Slope	
		Test Value, Z	Critical Value	Number of data points, n	Statistical Significance	(ug/L per day)	(ug/L per year)
MW-5	--[3]	--	--	--	--	--	--
MW-6	Decreasing	-8.9	-1.96	68	Yes	-5.9E-05	-0.022
MW-7	--	--	--	--	--	--	--
MW-12I	Decreasing	-7.9	-1.96	68	Yes	-6.5E-05	-0.024
MW-13D	--	--	--	--	--	--	--
MW-14	Decreasing	-9.3	-1.96	68	Yes	-7.8E-05	-0.029

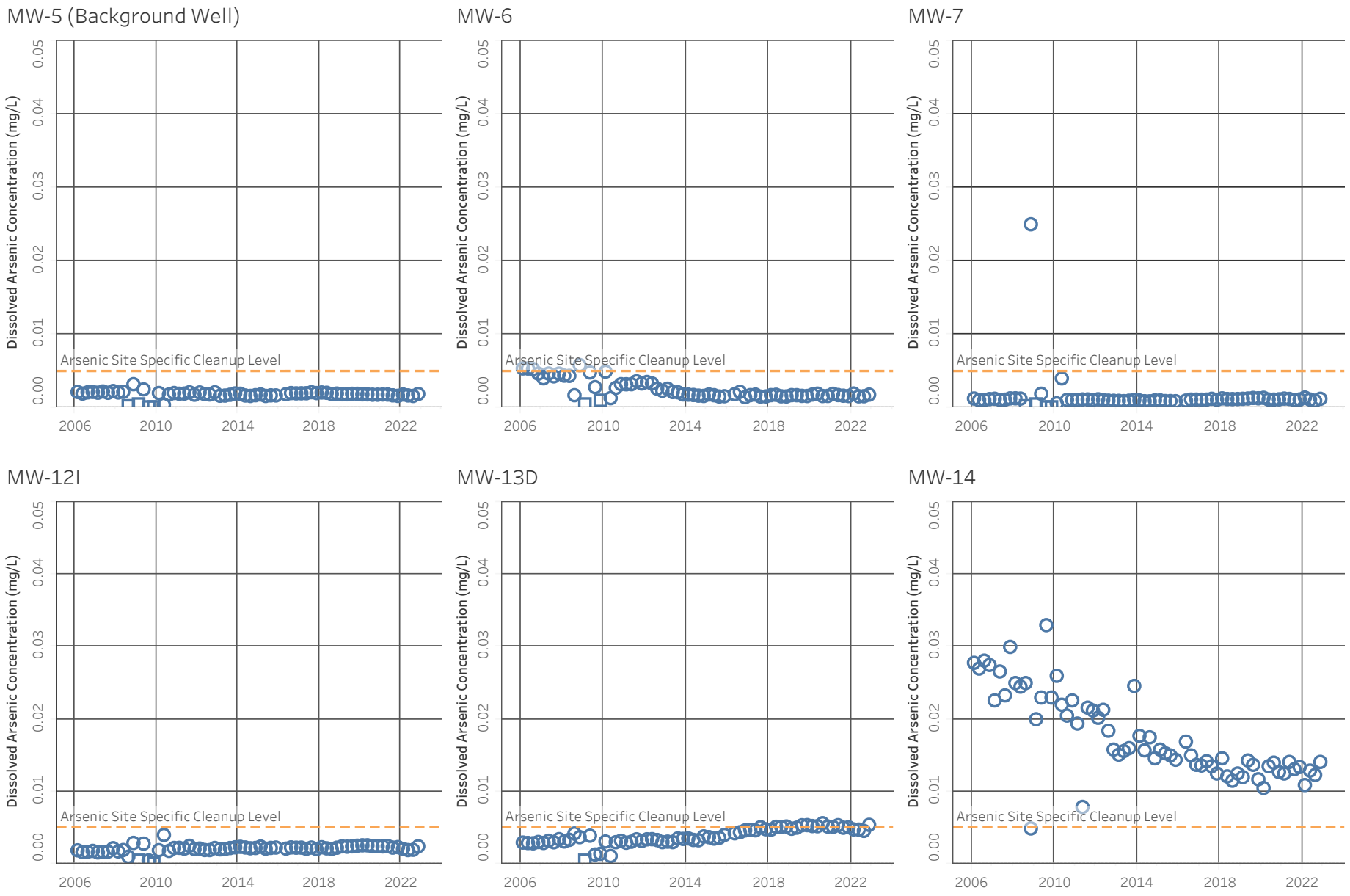
Notes

1 - The Statistical Trend indicates:
"Non-significant" if the magnitude of the Test Value is less than the Critical Value,
"Increasing" if the magnitude of the Test Value is greater than the Critical Value and the Sen's Slope is positive, or
"Decreasing" if the magnitude of the Test Value is greater than the Critical Value and the Sen's Slope is negative.

2 - Mann-Kendall tests were performed with alpha = 0.05 (95% confidence level).
For N>40, Mann-Kendall uses an approximation of a normal distribution, represented by Test Value Z.

3 - "--" Indicates statistical analysis not conducted.
ug/L - micrograms per liter
mg/L - milligrams per liter

4 - Data range is from 1st quarter 2007 through 4th quarter 2023

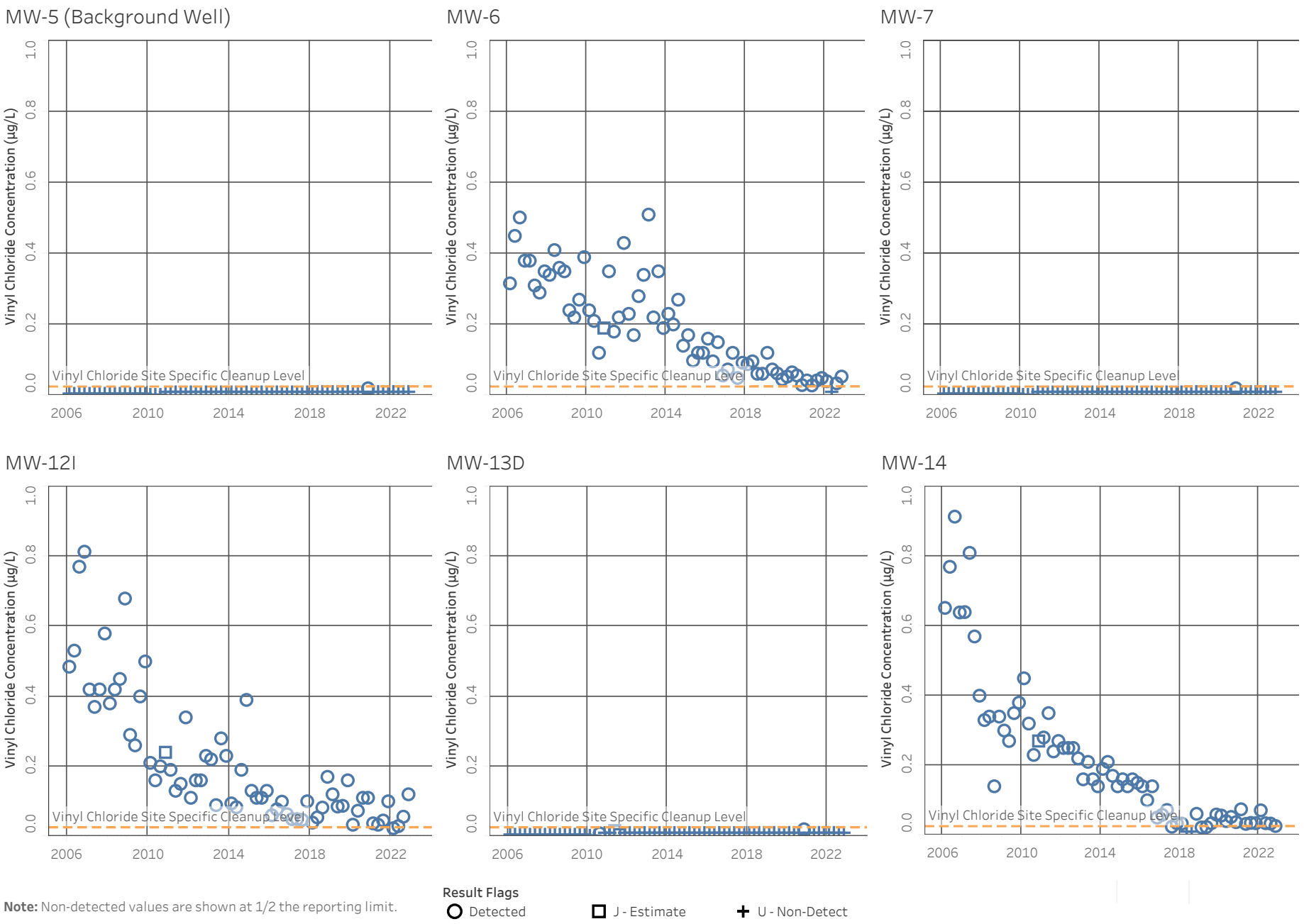


Note: Non-detected values are shown at 1/2 the reporting limit.
Results from First Quarter 2017 were rejected. See text.

Aspect CONSULTING

01/01/2024
Trend Plots (As)

Figure C-1 - Fourth Quarter Dissolved Arsenic Sampling Results
2023 Fourth Quarter Environmental Monitoring Report..



Note: Non-detected values are shown at 1/2 the reporting limit.

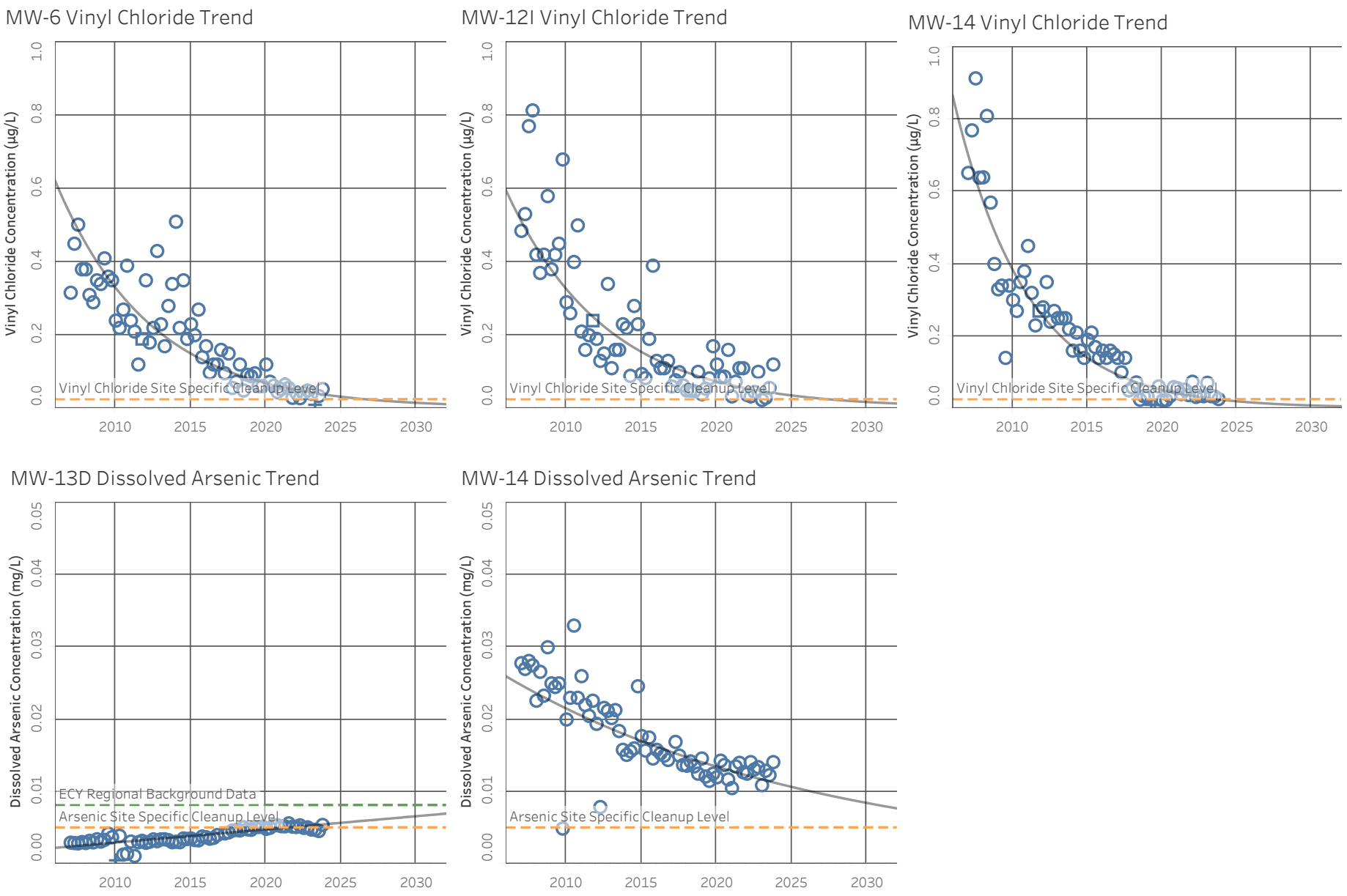
Result Flags

○ Detected □ J - Estimate + U - Non-Detect

Aspect CONSULTING

01/01/2024
Trend Plots (VC) 2021

Figure C-2 - 2023 Fourth Quarter Vinyl Chloride Sampling Results
2023 Fourth Quarter Environmental Monitoring Report
Hansville Landfill..



Note: Non-detected values are shown at 1/2 the reporting limit.
Attentuation curves based on exponential least squares fit to the data.

Aspect CONSULTING

01/01/2024
Trend Plots (VC) 2021

Figure C-3 - 10 Year Attenuation Curves
2023 Fourth Quarter Environmental Monitoring Report
Hansville Landfill..

APPENDIX D

Fourth Quarter Field Forms and Laboratory Reports

Aspect CONSULTING

Sample ID: SW-1-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-1 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 10/8/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs) —

Filter Pack Interval (ft. bgs) —

Starting Water Level (ft TOC): —

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): —

Casing Volume — (ft Water) x — (L/ft) = — (L) * Surface Water

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: — Well Sealed? — Lock Present? —

Standing Water in Vault? — Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1150	—	—	—	11.6	178.2	10.05	6.95	69.6	0.0	clear, no odor, no sheen

Total Liters Purged: — Total Casing Volumes Removed: — Ending Water Level (ft TOC): —

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1150	40 ml	VOA	3	N	HCL	clear	0.0	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	----	↓	↓	

METHODS

Parameters measured with (instrument model & serial number): YSI: Orange WLI: — Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump (Peri-pump) Red/white Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: —

Aspect CONSULTING

Sample ID: SW-4-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-4 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs): —

Filter Pack Interval (ft. bgs): —

Starting Water Level (ft TOC): —

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): —

Casing Volume — (ft Water) x — (L/ft) = — (L) *Surface water

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: — Well Sealed? — Lock Present? —

Standing Water in Vault? — Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1315	—	—	—	12.2	296.2	12.16	7.70	70.2	0.0	clear, no odor, no sheen

Total Liters Purged: — Total Casing Volumes Removed: — Ending Water Level (ft TOC): —

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1315	40 ml	VOA	3	N	HCL	Clear	0.0	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	----	↓		

METHODS

Parameters measured with (instrument model & serial number): YSI: Orange WLI: — Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump (Peri-pump) Red/white Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: —

Aspect CONSULTING

Sample ID: SW-6-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-6 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/F

Measuring Point of Well: NTOC

Screened Interval (ft. bgs): —

Filter Pack Interval (ft. bgs): —

Starting Water Level (ft TOC): —

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): —

Casing Volume — (ft Water) x — (L/ft) = — (L)

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: — Well Sealed? — Lock Present? —

Standing Water in Vault? — Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1415	—	—	—	13.3	142.5	11.18	7.75	46.7	46.7	clear, no odor, no sheen

Total Liters Purged: — Total Casing Volumes Removed: — Ending Water Level (ft TOC): —

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance Color	Appearance Turbidity & Sediment	Remarks
1415	40 ml	VOA	3	N	HCL	clear	~~clear~~ 46.7	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
	250 ml	Poly	1	Y	----			

METHODS

Parameters measured with (instrument model & serial number): YSI: Orange WLI: Orange 300' Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump Peri-pump red/white Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: —

Aspect CONSULTING

Sample ID: SW-7-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-7 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs): —

Filter Pack Interval (ft. bgs): —

Starting Water Level (ft TOC): —

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): —

Casing Volume — (ft Water) x — (L/ft) = — (L)

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: — Well Sealed? — Lock Present? —

Standing Water in Vault? — Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1505	—	—	—	13.8	153.3	12.14	7.66	53.1	0	clear, no odor, no flow

Total Liters Purged: — Total Casing Volumes Removed: — Ending Water Level (ft TOC): —

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1505	40 ml	VOA	3	N	HCL	Clear	0	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	----	↓	↓	

METHODS

Parameters measured with (instrument model & serial number): YSI: Orange WLI: — Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump Peri-pump red/white Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: Septic line (4-5' bgs) all under gravel road from Carino all the way to library / school near SW-7.

Aspect CONSULTING

Sample ID: MW-7-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-7 Page:___ of ___

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs) —

Filter Pack Interval (ft. bgs) —

Starting Water Level (ft TOC): 85.25

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): 2"

Casing Volume — (ft Water) x — (L/ft) = — (L) *dedicated bladder

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: good Well Sealed? yes Lock Present? yes

Standing Water in Vault? no Ecology Well Tag Present (and Number if yes)? ___

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
0826										START
0828		0.2	85.26	11.2	284.2	11.18	6.81	98.5	0	clear, no sheen, no odor
0833		↓	85.25	10.6	290.8	4.14	6.17	82.5	4.21	↓
0838			85.27	10.4	293.1	0.92	6.21	76.6	11.8	
0843			85.27	10.4	295.0	0.58	6.27	72.1	9.21	
0848			85.26	10.3	295.3	0.52	6.32	68.5	4.77	
0853		↓	85.27	10.3	294.8	0.50	6.36	65.7	2.94	↓
0855										Sampled

Total Liters Purged: 5 Total Casing Volumes Removed: — Ending Water Level (ft TOC): 85.27

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
0855	40 ml	VOA	3	N	HCL	clear	2.38	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	----	↓	↓	

METHODS

Parameters measured with (instrument model & serial number): YSI: orange WLI: Orange 300' Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump Peri-pump Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: ___

Aspect CONSULTING

Sample ID: MW-5-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-5 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs) —

Filter Pack Interval (ft. bgs) —

Casing Volume — (ft Water) x — (L/ft) = — (L)

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

Starting Water Level (ft TOC): 100.86

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): 2"

* dedicated bladder pump

WELL CONDITION

Vault Condition: good Well Sealed? yes Lock Present? yes

Standing Water in Vault? no Ecology Well Tag Present (and Number if yes)?

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
0953										START
1000		0.4	100.85	12.2	166.9	11.90	6.91	60.8	0	clear, no sheen, no odor
1005		↓	100.84	11.3	165.9	10.98	6.92	63.9	4.01	↓
1010			100.85	11.1	168.9	10.52	7.19	57.9	2.16	
1015			100.87	11.1	169.7	10.51	7.24	56.6	1.90	
1020		↓	100.85	11.0	169.4	10.54	7.26	55.7	0.07	↓
1025										Sampled

Total Liters Purged: 8 Total Casing Volumes Removed: — Ending Water Level (ft TOC): 100.84

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1025	40 ml	VOA	3	N	HCL	clear	1.66	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	----	↓	↓	

METHODS

Parameters measured with (instrument model & serial number): YSI: Orange WLI: Orange 300' Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump Peri-pump Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments:

Aspect CONSULTING

Sample ID: MW-12I-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-12I Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs) —

Filter Pack Interval (ft. bgs) —

Starting Water Level (ft TOC): 10.21

Sample Intake Depth (ft TOC): Dedicated tubing

Total Depth After Sampling (ft TOC): 33.45

Casing Diameter (inches): 2"

Casing Volume — (ft Water) x — (L/ft) = — (L)

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: Good Well Sealed? Yes Lock Present? Yes

Standing Water in Vault? No Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1139			10.21							Started Purging
1144	1	0.5	10.22	11.05	227.71	0.36	7.25	156.3	4.66	Clear, no odor
1149	2	↓	10.21	11.04	231.81	0.29	7.27	152.2	1.15	↓
1154	3		10.22	11.07	231.79	0.25	7.27	148.3	2.72	
1159	4		10.22	11.01	232.24	0.23	7.28	144.9	0.51	
1204			10.22	11.00	227.75	0.24	7.28	144.5	0.30	
1206										Sampled

Total Liters Purged: 6 Total Casing Volumes Removed: — Ending Water Level (ft TOC): 10.20

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1206	40 ml	VOA	3	N	HCL	Clear	1.64	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
	250 ml	Poly	1	Y	----			

METHODS

Parameters measured with (instrument model & serial number): YSI: Aqua Troll (green) WLI: 150' purple Turbidimeter: Green

Purging Equipment: Dedicated bladder pump Peri-pump Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: —

Aspect CONSULTING

Sample ID: MW-13D-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-13D Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs) —

Filter Pack Interval (ft. bgs) —

Starting Water Level (ft TOC): 11.91

Sample Intake Depth (ft TOC): Dedicated tubing

Total Depth After Sampling (ft TOC): 57.72

Casing Diameter (inches): 2"

Casing Volume — (ft Water) x — (L/ft) = — (L)

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: good Well Sealed? yes Lock Present? yes

Standing Water in Vault? no Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1307			12.02							Began purging
1312	1	0.3	11.98	10.74	159.34	0.28	7.75	101.3	5.93	clear, no sheen, no odor
1317	2	↓	11.98	10.79	159.40	0.18	7.74	99.1	4.47	↓
1322	3		11.98	10.99	159.44	0.16	7.77	95.7	5.06	
1327	4		11.99	11.02	159.31	0.16	7.72	92.9	4.18	
1332	5	↓	11.99	11.00	159.33	0.17	7.78	90.6	3.41	↓
1335										Sampled

Total Liters Purged: 6.5 Total Casing Volumes Removed: — Ending Water Level (ft TOC): 11.91

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1335	40 ml	VOA	3	N	HCL	clear	1.86	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	----	↓	↓	

METHODS

Parameters measured with (instrument model & serial number): YSI Aquatroll (green) WLI: 150' Purple Turbidimeter: Green

Purging Equipment: Dedicated bladder pump Peri-pump Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: —

Aspect CONSULTING

Sample ID: MW-14-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-14 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 1018/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs): —

Filter Pack Interval (ft. bgs): —

Starting Water Level (ft TOC): 82.82

Sample Intake Depth (ft TOC): —

Total Depth After Sampling (ft TOC): —

Casing Diameter (inches): 2"

Casing Volume — (ft Water) x — (L/ft) = — (L) + dedicated bladder

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: good Well Sealed? yes Lock Present? yes

Standing Water in Vault? no Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1608									15.3	START
1615		0.3	82.84	12.1	168.0	5.34	7.27	69.2	[illegible]	clear, no sheen, no odor
1620		↓	82.85	12.0	161.3	1.58	7.34	59.5	21.2	↓
1625			82.82	12.0	161.5	0.54	7.38	55.3	17.5	
1630			82.82	12.0	162.1	0.36	7.38	54.9	11.4	
1635			82.84	12.1	162.4	0.31	7.37	54.1	6.17	
1640		↓	82.84	12.0	161.5	0.29	7.35	53.5	2.22	↓
1645										Sampled

Total Liters Purged: 8 Total Casing Volumes Removed: — Ending Water Level (ft TOC): 82.82

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1645	40 ml	VOA	3	N	HCL	Clear	0.55	
↓	250 ml	Amber	2	N	H2SO4	↓	↓	
	500 ml	Poly	2	N	---			
	500 ml	Poly	2	Y	HNO3			
↓	250 ml	Poly	1	Y	---	↓	↓	

METHODS

Parameters measured with (instrument model & serial number): YSI: Orange WLI: Orange 300' Turbidimeter: Orange

Purging Equipment: Dedicated bladder pump Peri-pump Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: MW-2000 (Dupe) Collected at 0700 am.

MW-2000-231018

Aspect CONSULTING

Sample ID: MW-6-231018

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-6 Page: 1 of 1

Project Name: Hansville Landfill Q4 2023 Project Number: 160423

Date: 10/18/2023

Sampled by: CMT/FCE

Measuring Point of Well: NTOC

Screened Interval (ft. bgs) —

Filter Pack Interval (ft. bgs) —

Starting Water Level (ft TOC): 74.70

Sample Intake Depth (ft TOC): dedicated tubing

Total Depth After Sampling (ft TOC): 81.34

Casing Diameter (inches): 2"

Casing Volume — (ft Water) x — (L/ft) = — (L)

Casing volumes: 3/4"= 0.09 L/ft 2" = 0.62 L/ft 4" = 2.46 L/ft 6" = 5.56 L/ft

WELL CONDITION

Vault Condition: good Well Sealed? yes Lock Present? yes

Standing Water in Vault? no Ecology Well Tag Present (and Number if yes)? —

PURGING MEASUREMENTS

Stabilization Criteria (for 3 consecutive readings):		Typical 0.1-0.5 Lpm	Stable (<0.3 ft target)	na	± 3%	± 10% (or ± 0.5 mg/L if < 1 mg/L)	± 0.1	± 10 mV	± 10% (or 3 succesive < 10 NTU)	
Time	Cumul. Volume (L)	Purge Rate (mL/min)	Water Level (ft)	Temp. (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Comments
1611			74.72							Begin purging
1616	0.5	0.1	74.72	14.10	246.71	8.27	7.62	100.8	0	clear
1621	1.0		74.72	13.56	218.39	2.53	7.39	99.0	0	
1626	1.5		74.72	13.27	212.29	0.77	7.29	99.2	0	
1631	2		74.72	13.36	213.02	0.44	7.32	95.6	0	
1636	2.5		74.72	13.23	212.89	0.31	7.30	95.5	0	
1641	3		74.72	13.20	211.34	0.26	7.27	96.6	0	
1646	3.5		74.72	13.23	211.68	0.23	7.33	92.2	0	
1650										Sampled

Total Liters Purged: 4 Total Casing Volumes Removed: — Ending Water Level (ft TOC): 74.70

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1650	40 ml	VOA	3	N	HCL	clear	0	
	250 ml	Amber	2	N	H2SO4			
	500 ml	Poly	2	N	----			
	500 ml	Poly	2	Y	HNO3			
	250 ml	Poly	1	Y	----			

METHODS

Parameters measured with (instrument model & serial number): YSI: Aquatroll (green) WLI: 150' purple Turbidimeter: Cooper

Purging Equipment: Dedicated bladder pump Peri-pump Decon Equipment: Alconox & DI water

Disposal of Discharged Water: On site

Observations/Comments: —

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Peter Bannister
Aspect Consulting
350 Madison Ave N
Bainbridge Island, Washington 98110

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JOB DESCRIPTION

Hansville Landfill
2Q_3Q_4Q Sampling

JOB NUMBER

280-183394-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

Job Notes

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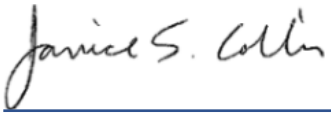

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Table of Contents

Cover Page 1
Table of Contents 3
Definitions 4
Case Narrative 5
Detection Summary 7
Method Summary 9
Sample Summary 10
Client Sample Results 11
Surrogate Summary 17
QC Sample Results 18
QC Association 24
Chronicle 27
Subcontract Data 31
Chain of Custody 75
Receipt Checklists 80

Definitions/Glossary

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-183394-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Aspect Consulting

Project: Hansville Landfill

Report Number: 280-183394-1

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.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

RECEIPT

The samples were received on 10/20/2023; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt were 0.2°C and 0.6°C.

VOLATILE ORGANICS (GC-MS)

Samples MW5-231018 (280-183394-1), MW6-231018 (280-183394-2), MW7-231018 (280-183394-3), MW12I-231018 (280-183394-4), MW13D-231018 (280-183394-5), MW14-231018 (280-183394-6), MW20DD-231018 (280-183394-7), SW1-231018 (280-183394-8), SW4-231018 (280-183394-9), SW6-231018 (280-183394-10) and SW7-231018 (280-183394-11) were analyzed for volatile organics (GC-MS) in accordance with 8260C_SIM. The samples were analyzed on 10/24/2023 and 10/25/2023.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED METALS (ICP/MS)

Samples MW5-231018 (280-183394-1), MW6-231018 (280-183394-2), MW7-231018 (280-183394-3), MW12I-231018 (280-183394-4), MW13D-231018 (280-183394-5), MW14-231018 (280-183394-6), MW20DD-231018 (280-183394-7), SW1-231018 (280-183394-8), SW4-231018 (280-183394-9), SW6-231018 (280-183394-10) and SW7-231018 (280-183394-11) were analyzed for dissolved metals (ICP/MS) in accordance with EPA SW-846 Method 6020. The samples were prepared on 11/07/2023 and analyzed on 11/08/2023.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY

Samples MW5-231018 (280-183394-1), MW6-231018 (280-183394-2), MW7-231018 (280-183394-3), MW12I-231018 (280-183394-4), MW13D-231018 (280-183394-5), MW14-231018 (280-183394-6), MW20DD-231018 (280-183394-7), SW1-231018 (280-183394-8), SW4-231018 (280-183394-9), SW6-231018 (280-183394-10) and SW7-231018 (280-183394-11) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/24/2023.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Samples MW5-231018 (280-183394-1), MW6-231018 (280-183394-2), MW7-231018 (280-183394-3), MW12I-231018 (280-183394-4), MW13D-231018 (280-183394-5), MW14-231018 (280-183394-6), MW20DD-231018 (280-183394-7), SW1-231018 (280-183394-8), SW4-231018 (280-183394-9), SW6-231018 (280-183394-10) and SW7-231018 (280-183394-11) were analyzed for anions (28 days) in accordance with EPA Method 300.0 (28 Days). The samples were analyzed on 11/14/2023 and 11/15/2023.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-633888 were outside control limits for one or more

Job ID: 280-183394-1 (Continued)

Laboratory: Eurofins Denver (Continued)

analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS/LCSD) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

AMMONIA

Samples MW5-231018 (280-183394-1), MW6-231018 (280-183394-2), MW7-231018 (280-183394-3), MW12I-231018 (280-183394-4), MW13D-231018 (280-183394-5), MW14-231018 (280-183394-6), MW20DD-231018 (280-183394-7), SW1-231018 (280-183394-8), SW4-231018 (280-183394-9), SW6-231018 (280-183394-10) and SW7-231018 (280-183394-11) were analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 11/02/2023 and 11/09/2023.

Ammonia as N was detected in method blank MB 280-632340/169 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW5-231018 (280-183394-1), MW6-231018 (280-183394-2), MW7-231018 (280-183394-3), MW12I-231018 (280-183394-4), MW13D-231018 (280-183394-5), MW14-231018 (280-183394-6), MW20DD-231018 (280-183394-7), SW1-231018 (280-183394-8), SW4-231018 (280-183394-9), SW6-231018 (280-183394-10) and SW7-231018 (280-183394-11) were analyzed for total organic carbon in accordance with SM20 5310B. The samples were analyzed on 10/25/2023 and 10/26/2023.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract Work

Methods Dissolved As (ARI) - direct sub to ARI from field, Nitrate/Nitrite/o-phos(field filtered) (ARI) - direct sub to ARI from field: These methods were subcontracted to Analytical Resources, Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

Detection Summary

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Client Sample ID: MW5-231018 — Lab Sample ID: 280-183394-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	7.9		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	80		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	80		10		mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW6-231018 — Lab Sample ID: 280-183394-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.053		0.020		ug/L	1		8260C SIM	Total/NA
Manganese	180		1.0		ug/L	1		6020	Dissolved
Chloride	4.8		3.0		mg/L	1		300.0	Total/NA
Sulfate	9.0		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	110		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	110		10		mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW7-231018 — Lab Sample ID: 280-183394-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	1.3		1.0		ug/L	1		6020	Dissolved
Sulfate	8.1		5.0		mg/L	1		300.0	Total/NA
Ammonia as N	0.037		0.030		mg/L	1		350.1	Total/NA
Total Alkalinity	170		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	170		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	1.5		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: MW12I-231018 — Lab Sample ID: 280-183394-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.12		0.020		ug/L	1		8260C SIM	Total/NA
Manganese	62		1.0		ug/L	1		6020	Dissolved
Chloride	13		3.0		mg/L	1		300.0	Total/NA
Sulfate	12		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	120		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	120		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	2.0		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: MW13D-231018 — Lab Sample ID: 280-183394-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	5.7		1.0		ug/L	1		6020	Dissolved
Chloride	5.5	F1	3.0		mg/L	1		300.0	Total/NA
Sulfate	16		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	74		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	74		10		mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW14-231018 — Lab Sample ID: 280-183394-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.026		0.020		ug/L	1		8260C SIM	Total/NA
Manganese	880		1.0		ug/L	1		6020	Dissolved
Chloride	4.0		3.0		mg/L	1		300.0	Total/NA
Sulfate	9.2		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	90		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	90		10		mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Client Sample ID: MW14-231018 (Continued) — Lab Sample ID: 280-183394-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon - Average	2.0		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: MW20DD-231018 — Lab Sample ID: 280-183394-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.027		0.020		ug/L	1		8260C SIM	Total/NA
Manganese	860		1.0		ug/L	1		6020	Dissolved
Chloride	3.8		3.0		mg/L	1		300.0	Total/NA
Sulfate	8.8		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	86		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	86		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	1.9		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: SW1-231018 — Lab Sample ID: 280-183394-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.5		3.0		mg/L	1		300.0	Total/NA
Sulfate	12		5.0		mg/L	1		300.0	Total/NA
Total Alkalinity	83		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	83		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	1.9		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: SW4-231018 — Lab Sample ID: 280-183394-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	24		1.0		ug/L	1		6020	Dissolved
Chloride	13		3.0		mg/L	1		300.0	Total/NA
Sulfate	22		5.0		mg/L	1		300.0	Total/NA
Ammonia as N	0.038		0.030		mg/L	1		350.1	Total/NA
Total Alkalinity	160		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	160		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	9.9		2.0		mg/L	2		SM 5310B	Total/NA

Client Sample ID: SW6-231018 — Lab Sample ID: 280-183394-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	47		1.0		ug/L	1		6020	Dissolved
Chloride	4.5		3.0		mg/L	1		300.0	Total/NA
Sulfate	8.2		5.0		mg/L	1		300.0	Total/NA
Ammonia as N	0.046		0.030		mg/L	1		350.1	Total/NA
Total Alkalinity	68		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	68		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	17		2.0		mg/L	2		SM 5310B	Total/NA

Client Sample ID: SW7-231018 — Lab Sample ID: 280-183394-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	7.8		1.0		ug/L	1		6020	Dissolved
Ammonia as N	0.073		0.030		mg/L	1		350.1	Total/NA
Total Alkalinity	81		10		mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity	81		10		mg/L	1		SM 2320B	Total/NA
Total Organic Carbon - Average	11		2.0		mg/L	2		SM 5310B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Method	Method Description	Protocol	Laboratory
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	EET BUF
6020	Metals (ICP/MS)	SW846	EET DEN
300.0	Anions, Ion Chromatography	EPA	EET DEN
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
Subcontract	Dissolved As (ARI) - direct sub to ARI from field	None	SC0056
Subcontract	Nitrate/Nitrite/o-phos(field filtered) (ARI) - direct sub to ARI from field	None	SC0056
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
5030C	Purge and Trap	SW846	EET BUF

Protocol References:

EPA = US Environmental Protection Agency

None = None

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.

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

SC0056 = Analytical Resources, Inc, 4611 South 134th Place, Suite 100, Tukwila, WA 98168, TEL (206)695-6200

Sample Summary

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-183394-1	MW5-231018	Water	10/18/23 10:25	10/20/23 18:57
280-183394-2	MW6-231018	Water	10/18/23 16:50	10/20/23 18:57
280-183394-3	MW7-231018	Water	10/18/23 08:55	10/20/23 18:57
280-183394-4	MW12I-231018	Water	10/18/23 12:06	10/20/23 18:57
280-183394-5	MW13D-231018	Water	10/18/23 13:35	10/20/23 18:57
280-183394-6	MW14-231018	Water	10/18/23 16:45	10/20/23 18:57
280-183394-7	MW20DD-231018	Water	10/18/23 07:00	10/20/23 18:57
280-183394-8	SW1-231018	Water	10/18/23 11:50	10/20/23 18:57
280-183394-9	SW4-231018	Water	10/18/23 13:15	10/20/23 18:57
280-183394-10	SW6-231018	Water	10/18/23 14:15	10/20/23 18:57
280-183394-11	SW7-231018	Water	10/18/23 15:05	10/20/23 18:57

Method: SW846 8260C SIM - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW5-231018
Date Collected: 10/18/23 10:25
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/24/23 22:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*50 - 150*		*10/24/23 22:04*	*1*
TBA-d9 (Surr)	*95*		*50 - 150*		*10/24/23 22:04*	*1*

Client Sample ID: MW6-231018
Date Collected: 10/18/23 16:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.053**		0.020		ug/L			10/24/23 22:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*50 - 150*		*10/24/23 22:28*	*1*
TBA-d9 (Surr)	*84*		*50 - 150*		*10/24/23 22:28*	*1*

Client Sample ID: MW7-231018
Date Collected: 10/18/23 08:55
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/24/23 22:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*112*		*50 - 150*		*10/24/23 22:52*	*1*
TBA-d9 (Surr)	*84*		*50 - 150*		*10/24/23 22:52*	*1*

Client Sample ID: MW12I-231018
Date Collected: 10/18/23 12:06
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.12**		0.020		ug/L			10/24/23 23:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*50 - 150*		*10/24/23 23:16*	*1*
TBA-d9 (Surr)	*94*		*50 - 150*		*10/24/23 23:16*	*1*

Client Sample ID: MW13D-231018
Date Collected: 10/18/23 13:35
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/24/23 23:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*116*		*50 - 150*		*10/24/23 23:40*	*1*
TBA-d9 (Surr)	*104*		*50 - 150*		*10/24/23 23:40*	*1*

Client Sample ID: MW14-231018
Date Collected: 10/18/23 16:45
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.026**		0.020		ug/L			10/25/23 00:04	1

Method: SW846 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	115		50 - 150		10/25/23 00:04	1
TBA-d9 (Surr)	93		50 - 150		10/25/23 00:04	1

Client Sample ID: MW20DD-231018 — **Lab Sample ID: 280-183394-7**
Date Collected: 10/18/23 07:00 — **Matrix: Water**
Date Received: 10/20/23 18:57

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.027**		0.020		ug/L			10/25/23 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	113		50 - 150		10/25/23 00:28	1
TBA-d9 (Surr)	93		50 - 150		10/25/23 00:28	1

Client Sample ID: SW1-231018 — **Lab Sample ID: 280-183394-8**
Date Collected: 10/18/23 11:50 — **Matrix: Water**
Date Received: 10/20/23 18:57

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/25/23 00:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	115		50 - 150		10/25/23 00:51	1
TBA-d9 (Surr)	98		50 - 150		10/25/23 00:51	1

Client Sample ID: SW4-231018 — **Lab Sample ID: 280-183394-9**
Date Collected: 10/18/23 13:15 — **Matrix: Water**
Date Received: 10/20/23 18:57

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/25/23 01:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	115		50 - 150		10/25/23 01:15	1
TBA-d9 (Surr)	95		50 - 150		10/25/23 01:15	1

Client Sample ID: SW6-231018 — **Lab Sample ID: 280-183394-10**
Date Collected: 10/18/23 14:15 — **Matrix: Water**
Date Received: 10/20/23 18:57

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/25/23 01:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	114		50 - 150		10/25/23 01:39	1
TBA-d9 (Surr)	89		50 - 150		10/25/23 01:39	1

Client Sample ID: SW7-231018 — **Lab Sample ID: 280-183394-11**
Date Collected: 10/18/23 15:05 — **Matrix: Water**
Date Received: 10/20/23 18:57

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/25/23 02:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	114		50 - 150		10/25/23 02:03	1
TBA-d9 (Surr)	98		50 - 150		10/25/23 02:03	1

Method: SW846 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: MW5-231018
Date Collected: 10/18/23 10:25
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		1.0		ug/L		11/07/23 08:44	11/08/23 20:19	1

Client Sample ID: MW6-231018
Date Collected: 10/18/23 16:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**180**		1.0		ug/L		11/07/23 08:44	11/08/23 20:22	1

Client Sample ID: MW7-231018
Date Collected: 10/18/23 08:55
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**1.3**		1.0		ug/L		11/07/23 08:44	11/08/23 09:45	1

Client Sample ID: MW12I-231018
Date Collected: 10/18/23 12:06
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**62**		1.0		ug/L		11/07/23 08:44	11/08/23 09:48	1

Client Sample ID: MW13D-231018
Date Collected: 10/18/23 13:35
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**5.7**		1.0		ug/L		11/07/23 08:44	11/08/23 09:52	1

Client Sample ID: MW14-231018
Date Collected: 10/18/23 16:45
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**880**		1.0		ug/L		11/07/23 08:44	11/08/23 09:55	1

Client Sample ID: MW20DD-231018
Date Collected: 10/18/23 07:00
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**860**		1.0		ug/L		11/07/23 08:44	11/08/23 09:59	1

Client Sample ID: SW1-231018
Date Collected: 10/18/23 11:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		1.0		ug/L		11/07/23 08:44	11/08/23 10:02	1

Client Sample ID: SW4-231018
Date Collected: 10/18/23 13:15
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**24**		1.0		ug/L		11/07/23 08:44	11/08/23 20:26	1

Method: SW846 6020 - Metals (ICP/MS) - Dissolved

Client Sample ID: SW6-231018
Date Collected: 10/18/23 14:15
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**47**		1.0		ug/L		11/07/23 08:44	11/08/23 20:29	1

Client Sample ID: SW7-231018
Date Collected: 10/18/23 15:05
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**7.8**		1.0		ug/L		11/07/23 08:44	11/08/23 20:33	1

General Chemistry

Client Sample ID: MW5-231018
Date Collected: 10/18/23 10:25
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	ND		3.0		mg/L			11/14/23 22:37	1
Sulfate (EPA 300.0)	**7.9**		5.0		mg/L			11/14/23 22:37	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/02/23 16:19	1
Total Alkalinity (SM 2320B)	**80**		10		mg/L			10/24/23 12:44	1
Bicarbonate Alkalinity (SM 2320B)	**80**		10		mg/L			10/24/23 12:44	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 12:44	1
Total Organic Carbon - Average (SM 5310B)	ND		1.0		mg/L			10/25/23 16:12	1

Client Sample ID: MW6-231018
Date Collected: 10/18/23 16:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**4.8**		3.0		mg/L			11/14/23 23:32	1
Sulfate (EPA 300.0)	**9.0**		5.0		mg/L			11/14/23 23:32	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/02/23 16:30	1
Total Alkalinity (SM 2320B)	**110**		10		mg/L			10/24/23 13:03	1
Bicarbonate Alkalinity (SM 2320B)	**110**		10		mg/L			10/24/23 13:03	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:03	1
Total Organic Carbon - Average (SM 5310B)	ND		1.0		mg/L			10/25/23 17:06	1

Client Sample ID: MW7-231018
Date Collected: 10/18/23 08:55
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	ND		3.0		mg/L			11/14/23 23:43	1
Sulfate (EPA 300.0)	**8.1**		5.0		mg/L			11/14/23 23:43	1
Ammonia as N (EPA 350.1)	**0.037**		0.030		mg/L			11/09/23 14:01	1
Total Alkalinity (SM 2320B)	**170**		10		mg/L			10/24/23 13:09	1
Bicarbonate Alkalinity (SM 2320B)	**170**		10		mg/L			10/24/23 13:09	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:09	1
Total Organic Carbon - Average (SM 5310B)	**1.5**		1.0		mg/L			10/25/23 19:48	1

General Chemistry

Client Sample ID: MW12I-231018
Date Collected: 10/18/23 12:06
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**13**		3.0		mg/L			11/14/23 23:54	1
Sulfate (EPA 300.0)	**12**		5.0		mg/L			11/14/23 23:54	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/02/23 16:35	1
Total Alkalinity (SM 2320B)	**120**		10		mg/L			10/24/23 13:15	1
Bicarbonate Alkalinity (SM 2320B)	**120**		10		mg/L			10/24/23 13:15	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:15	1
Total Organic Carbon - Average (SM 5310B)	**2.0**		1.0		mg/L			10/26/23 02:04	1

Client Sample ID: MW13D-231018
Date Collected: 10/18/23 13:35
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**5.5**	**F1**	3.0		mg/L			11/15/23 00:05	1
Sulfate (EPA 300.0)	**16**		5.0		mg/L			11/15/23 00:05	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/02/23 16:38	1
Total Alkalinity (SM 2320B)	**74**		10		mg/L			10/24/23 13:21	1
Bicarbonate Alkalinity (SM 2320B)	**74**		10		mg/L			10/24/23 13:21	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:21	1
Total Organic Carbon - Average (SM 5310B)	ND		1.0		mg/L			10/26/23 03:15	1

Client Sample ID: MW14-231018
Date Collected: 10/18/23 16:45
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**4.0**		3.0		mg/L			11/15/23 00:49	1
Sulfate (EPA 300.0)	**9.2**		5.0		mg/L			11/15/23 00:49	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/02/23 16:41	1
Total Alkalinity (SM 2320B)	**90**		10		mg/L			10/24/23 13:26	1
Bicarbonate Alkalinity (SM 2320B)	**90**		10		mg/L			10/24/23 13:26	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:26	1
Total Organic Carbon - Average (SM 5310B)	**2.0**		1.0		mg/L			10/26/23 03:31	1

Client Sample ID: MW20DD-231018
Date Collected: 10/18/23 07:00
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**3.8**		3.0		mg/L			11/15/23 01:00	1
Sulfate (EPA 300.0)	**8.8**		5.0		mg/L			11/15/23 01:00	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/09/23 14:17	1
Total Alkalinity (SM 2320B)	**86**		10		mg/L			10/24/23 13:32	1
Bicarbonate Alkalinity (SM 2320B)	**86**		10		mg/L			10/24/23 13:32	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:32	1
Total Organic Carbon - Average (SM 5310B)	**1.9**		1.0		mg/L			10/26/23 03:46	1

General Chemistry

Client Sample ID: SW1-231018
Date Collected: 10/18/23 11:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**5.5**		3.0		mg/L			11/15/23 01:11	1
Sulfate (EPA 300.0)	**12**		5.0		mg/L			11/15/23 01:11	1
Ammonia as N (EPA 350.1)	ND		0.030		mg/L			11/02/23 17:05	1
Total Alkalinity (SM 2320B)	**83**		10		mg/L			10/24/23 13:37	1
Bicarbonate Alkalinity (SM 2320B)	**83**		10		mg/L			10/24/23 13:37	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:37	1
Total Organic Carbon - Average (SM 5310B)	**1.9**		1.0		mg/L			10/26/23 04:02	1

Client Sample ID: SW4-231018
Date Collected: 10/18/23 13:15
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**13**		3.0		mg/L			11/15/23 01:22	1
Sulfate (EPA 300.0)	**22**		5.0		mg/L			11/15/23 01:22	1
Ammonia as N (EPA 350.1)	**0.038**		0.030		mg/L			11/09/23 14:23	1
Total Alkalinity (SM 2320B)	**160**		10		mg/L			10/24/23 13:43	1
Bicarbonate Alkalinity (SM 2320B)	**160**		10		mg/L			10/24/23 13:43	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:43	1
Total Organic Carbon - Average (SM 5310B)	**9.9**		2.0		mg/L			10/26/23 04:18	2

Client Sample ID: SW6-231018
Date Collected: 10/18/23 14:15
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	**4.5**		3.0		mg/L			11/14/23 22:48	1
Sulfate (EPA 300.0)	**8.2**		5.0		mg/L			11/14/23 22:48	1
Ammonia as N (EPA 350.1)	**0.046**		0.030		mg/L			11/09/23 14:25	1
Total Alkalinity (SM 2320B)	**68**		10		mg/L			10/24/23 13:49	1
Bicarbonate Alkalinity (SM 2320B)	**68**		10		mg/L			10/24/23 13:49	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:49	1
Total Organic Carbon - Average (SM 5310B)	**17**		2.0		mg/L			10/26/23 04:32	2

Client Sample ID: SW7-231018
Date Collected: 10/18/23 15:05
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (EPA 300.0)	ND		3.0		mg/L			11/14/23 22:59	1
Sulfate (EPA 300.0)	ND		5.0		mg/L			11/14/23 22:59	1
Ammonia as N (EPA 350.1)	**0.073**		0.030		mg/L			11/09/23 14:20	1
Total Alkalinity (SM 2320B)	**81**		10		mg/L			10/24/23 13:55	1
Bicarbonate Alkalinity (SM 2320B)	**81**		10		mg/L			10/24/23 13:55	1
Carbonate Alkalinity (SM 2320B)	ND		10		mg/L			10/24/23 13:55	1
Total Organic Carbon - Average (SM 5310B)	**11**		2.0		mg/L			10/26/23 04:46	2

Surrogate Summary

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		DBFM	TBA										
Lab Sample ID	Client Sample ID	(50-150)	(50-150)										
280-183394-1	MW5-231018	110	95										
280-183394-2	MW6-231018	111	84										
280-183394-3	MW7-231018	112	84										
280-183394-4	MW12I-231018	113	94										
280-183394-5	MW13D-231018	116	104										
280-183394-6	MW14-231018	115	93										
280-183394-7	MW20DD-231018	113	93										
280-183394-8	SW1-231018	115	98										
280-183394-9	SW4-231018	115	95										
280-183394-10	SW6-231018	114	89										
280-183394-11	SW7-231018	114	98										
LCS 480-688915/6	Lab Control Sample	102	79										
LCSD 480-688915/7	Lab Control Sample Dup	99	92										
MB 480-688915/9	Method Blank	112	71										

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TBA = TBA-d9 (Surr)

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-688915/9
Matrix: Water
Analysis Batch: 688915

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.020		ug/L			10/24/23 21:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*112*		*50 - 150*		*10/24/23 21:19*	*1*
TBA-d9 (Surr)	*71*		*50 - 150*		*10/24/23 21:19*	*1*

Lab Sample ID: LCS 480-688915/6
Matrix: Water
Analysis Batch: 688915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Vinyl chloride			0.200	0.241		ug/L		121	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*50 - 150*
TBA-d9 (Surr)	*79*		*50 - 150*

Lab Sample ID: LCSD 480-688915/7
Matrix: Water
Analysis Batch: 688915

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride			0.200	0.262		ug/L		131	50 - 150	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*50 - 150*
TBA-d9 (Surr)	*92*		*50 - 150*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 280-632699/1-A
Matrix: Water
Analysis Batch: 633040

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 632699

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		1.0		ug/L		11/07/23 08:44	11/07/23 17:54	1

Lab Sample ID: LCS 280-632699/2-A
Matrix: Water
Analysis Batch: 633040

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 632699

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			40.0	38.5		ug/L		96	85 - 117		

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-183098-E-4-B MS
Matrix: Water
Analysis Batch: 633547

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 632699

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	24		40.0	60.7		ug/L		91	85 - 117

Lab Sample ID: 280-183098-E-4-C MSD
Matrix: Water
Analysis Batch: 633547

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 632699

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	24		40.0	61.7		ug/L		93	85 - 117	2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 280-633888/6
Matrix: Water
Analysis Batch: 633888

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/L			11/14/23 20:34	1
Sulfate	ND		5.0		mg/L			11/14/23 20:34	1

Lab Sample ID: LCS 280-633888/4
Matrix: Water
Analysis Batch: 633888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	99.9		mg/L		100	90 - 110
Sulfate	100	97.9		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-633888/5
Matrix: Water
Analysis Batch: 633888

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	1	10
Sulfate	100	98.6		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-633888/3
Matrix: Water
Analysis Batch: 633888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	5.15		mg/L		103	50 - 150
Sulfate	5.00	4.94	J	mg/L		99	50 - 150

Lab Sample ID: 280-183394-5 MS
Matrix: Water
Analysis Batch: 633888

Client Sample ID: MW13D-231018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.5	F1	50.0	66.5	F1	mg/L		122	80 - 120
Sulfate	16		50.0	70.1		mg/L		108	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 280-183394-5 MSD — **Client Sample ID: MW13D-231018**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633888

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	5.5	F1	50.0	60.7		mg/L		111	80 - 120	9	20
Sulfate	16		50.0	71.1		mg/L		109	80 - 120	1	20

Lab Sample ID: 280-183394-5 DU — **Client Sample ID: MW13D-231018**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 633888

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	5.5	F1	5.51		mg/L		0.7	15
Sulfate	16		16.1		mg/L		2	15

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-632340/169 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 632340

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.0360		0.030		mg/L			11/02/23 16:06	1

Lab Sample ID: LCS 280-632340/170 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 632340

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.51		mg/L		101	90 - 110

Lab Sample ID: 280-183394-1 MS — **Client Sample ID: MW5-231018**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 632340

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	ND		1.00	1.08		mg/L		108	90 - 110

Lab Sample ID: 280-183394-1 MSD — **Client Sample ID: MW5-231018**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 632340

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	ND		1.00	1.07		mg/L		107	90 - 110	0	10

Lab Sample ID: 280-183394-9 MS — **Client Sample ID: SW4-231018**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 632340

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	0.033	B	1.00	1.05		mg/L		101	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 280-183394-9 MSD
Matrix: Water
Analysis Batch: 632340

Client Sample ID: SW4-231018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	0.033	B	1.00	1.05		mg/L		102	90 - 110	0	10

Lab Sample ID: MB 280-633351/129
Matrix: Water
Analysis Batch: 633351

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.030		mg/L			11/09/23 13:01	1

Lab Sample ID: LCS 280-633351/130
Matrix: Water
Analysis Batch: 633351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.56		mg/L		102	90 - 110

Lab Sample ID: 280-183372-A-44 MS
Matrix: Water
Analysis Batch: 633351

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	0.088		1.00	1.13		mg/L		104	90 - 110

Lab Sample ID: 280-183372-A-44 MSD
Matrix: Water
Analysis Batch: 633351

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	0.088		1.00	1.15		mg/L		106	90 - 110	1	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-630984/110
Matrix: Water
Analysis Batch: 630984

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		10		mg/L			10/24/23 11:47	1
Bicarbonate Alkalinity	ND		10		mg/L			10/24/23 11:47	1
Carbonate Alkalinity	ND		10		mg/L			10/24/23 11:47	1

Lab Sample ID: LCS 280-630984/109
Matrix: Water
Analysis Batch: 630984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity	200	205		mg/L		103	89 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: 280-183372-C-2 DU
Matrix: Water
Analysis Batch: 630984

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity	75		77.0		mg/L		3	10
Bicarbonate Alkalinity	75		77.0		mg/L		3	20
Carbonate Alkalinity	ND		ND		mg/L		NC	20

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-631282/35
Matrix: Water
Analysis Batch: 631282

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	ND		1.0		mg/L			10/25/23 06:09	1

Lab Sample ID: MB 280-631282/68
Matrix: Water
Analysis Batch: 631282

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	ND		1.0		mg/L			10/25/23 18:13	1

Lab Sample ID: LCS 280-631282/34
Matrix: Water
Analysis Batch: 631282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average	25.0	25.4		mg/L		102	88 - 112

Lab Sample ID: LCS 280-631282/67
Matrix: Water
Analysis Batch: 631282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average	25.0	24.5		mg/L		98	88 - 112

Lab Sample ID: 280-183234-D-1 MS
Matrix: Water
Analysis Batch: 631282

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average	ND		25.0	25.8		mg/L		101	88 - 112

Lab Sample ID: 280-183234-D-1 MSD
Matrix: Water
Analysis Batch: 631282

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon - Average	ND		25.0	25.7		mg/L		100	88 - 112	1	15

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: MB 280-631357/35
Matrix: Water
Analysis Batch: 631357

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average	ND		1.0		mg/L			10/26/23 01:35	1

Lab Sample ID: LCS 280-631357/34
Matrix: Water
Analysis Batch: 631357

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Average			25.0	25.1		mg/L		100	88 - 112		

Lab Sample ID: 280-183394-4 MS
Matrix: Water
Analysis Batch: 631357

Client Sample ID: MW12I-231018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Average	2.0		25.0	26.5		mg/L		98	88 - 112		

Lab Sample ID: 280-183394-4 MSD
Matrix: Water
Analysis Batch: 631357

Client Sample ID: MW12I-231018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon - Average	2.0		25.0	25.6		mg/L		94	88 - 112	4	15

GC/MS VOA

Analysis Batch: 688915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Total/NA	Water	8260C SIM	
280-183394-2	MW6-231018	Total/NA	Water	8260C SIM	
280-183394-3	MW7-231018	Total/NA	Water	8260C SIM	
280-183394-4	MW12I-231018	Total/NA	Water	8260C SIM	
280-183394-5	MW13D-231018	Total/NA	Water	8260C SIM	
280-183394-6	MW14-231018	Total/NA	Water	8260C SIM	
280-183394-7	MW20DD-231018	Total/NA	Water	8260C SIM	
280-183394-8	SW1-231018	Total/NA	Water	8260C SIM	
280-183394-9	SW4-231018	Total/NA	Water	8260C SIM	
280-183394-10	SW6-231018	Total/NA	Water	8260C SIM	
280-183394-11	SW7-231018	Total/NA	Water	8260C SIM	
MB 480-688915/9	Method Blank	Total/NA	Water	8260C SIM	
LCS 480-688915/6	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 480-688915/7	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Metals

Prep Batch: 632699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Dissolved	Water	3005A	
280-183394-2	MW6-231018	Dissolved	Water	3005A	
280-183394-3	MW7-231018	Dissolved	Water	3005A	
280-183394-4	MW12I-231018	Dissolved	Water	3005A	
280-183394-5	MW13D-231018	Dissolved	Water	3005A	
280-183394-6	MW14-231018	Dissolved	Water	3005A	
280-183394-7	MW20DD-231018	Dissolved	Water	3005A	
280-183394-8	SW1-231018	Dissolved	Water	3005A	
280-183394-9	SW4-231018	Dissolved	Water	3005A	
280-183394-10	SW6-231018	Dissolved	Water	3005A	
280-183394-11	SW7-231018	Dissolved	Water	3005A	
MB 280-632699/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-632699/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-183098-E-4-B MS	Matrix Spike	Dissolved	Water	3005A	
280-183098-E-4-C MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	

Analysis Batch: 633040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-3	MW7-231018	Dissolved	Water	6020	632699
280-183394-4	MW12I-231018	Dissolved	Water	6020	632699
280-183394-5	MW13D-231018	Dissolved	Water	6020	632699
280-183394-6	MW14-231018	Dissolved	Water	6020	632699
280-183394-7	MW20DD-231018	Dissolved	Water	6020	632699
280-183394-8	SW1-231018	Dissolved	Water	6020	632699
MB 280-632699/1-A	Method Blank	Total Recoverable	Water	6020	632699
LCS 280-632699/2-A	Lab Control Sample	Total Recoverable	Water	6020	632699

Analysis Batch: 633185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Dissolved	Water	6020	632699
280-183394-2	MW6-231018	Dissolved	Water	6020	632699
280-183394-9	SW4-231018	Dissolved	Water	6020	632699

Metals (Continued)

Analysis Batch: 633185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-10	SW6-231018	Dissolved	Water	6020	632699
280-183394-11	SW7-231018	Dissolved	Water	6020	632699

Analysis Batch: 633547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183098-E-4-B MS	Matrix Spike	Dissolved	Water	6020	632699
280-183098-E-4-C MSD	Matrix Spike Duplicate	Dissolved	Water	6020	632699

General Chemistry

Analysis Batch: 630984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Total/NA	Water	SM 2320B	
280-183394-2	MW6-231018	Total/NA	Water	SM 2320B	
280-183394-3	MW7-231018	Total/NA	Water	SM 2320B	
280-183394-4	MW12I-231018	Total/NA	Water	SM 2320B	
280-183394-5	MW13D-231018	Total/NA	Water	SM 2320B	
280-183394-6	MW14-231018	Total/NA	Water	SM 2320B	
280-183394-7	MW20DD-231018	Total/NA	Water	SM 2320B	
280-183394-8	SW1-231018	Total/NA	Water	SM 2320B	
280-183394-9	SW4-231018	Total/NA	Water	SM 2320B	
280-183394-10	SW6-231018	Total/NA	Water	SM 2320B	
280-183394-11	SW7-231018	Total/NA	Water	SM 2320B	
MB 280-630984/110	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-630984/109	Lab Control Sample	Total/NA	Water	SM 2320B	
280-183372-C-2 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 631282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Total/NA	Water	SM 5310B	
280-183394-2	MW6-231018	Total/NA	Water	SM 5310B	
280-183394-3	MW7-231018	Total/NA	Water	SM 5310B	
MB 280-631282/35	Method Blank	Total/NA	Water	SM 5310B	
MB 280-631282/68	Method Blank	Total/NA	Water	SM 5310B	
LCS 280-631282/34	Lab Control Sample	Total/NA	Water	SM 5310B	
LCS 280-631282/67	Lab Control Sample	Total/NA	Water	SM 5310B	
280-183234-D-1 MS	Matrix Spike	Total/NA	Water	SM 5310B	
280-183234-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5310B	

Analysis Batch: 631357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-4	MW12I-231018	Total/NA	Water	SM 5310B	
280-183394-5	MW13D-231018	Total/NA	Water	SM 5310B	
280-183394-6	MW14-231018	Total/NA	Water	SM 5310B	
280-183394-7	MW20DD-231018	Total/NA	Water	SM 5310B	
280-183394-8	SW1-231018	Total/NA	Water	SM 5310B	
280-183394-9	SW4-231018	Total/NA	Water	SM 5310B	
280-183394-10	SW6-231018	Total/NA	Water	SM 5310B	
280-183394-11	SW7-231018	Total/NA	Water	SM 5310B	
MB 280-631357/35	Method Blank	Total/NA	Water	SM 5310B	
LCS 280-631357/34	Lab Control Sample	Total/NA	Water	SM 5310B	

General Chemistry (Continued)

Analysis Batch: 631357 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-4 MS	MW12I-231018	Total/NA	Water	SM 5310B	
280-183394-4 MSD	MW12I-231018	Total/NA	Water	SM 5310B	

Analysis Batch: 632340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Total/NA	Water	350.1	
280-183394-2	MW6-231018	Total/NA	Water	350.1	
280-183394-4	MW12I-231018	Total/NA	Water	350.1	
280-183394-5	MW13D-231018	Total/NA	Water	350.1	
280-183394-6	MW14-231018	Total/NA	Water	350.1	
280-183394-8	SW1-231018	Total/NA	Water	350.1	
MB 280-632340/169	Method Blank	Total/NA	Water	350.1	
LCS 280-632340/170	Lab Control Sample	Total/NA	Water	350.1	
280-183394-1 MS	MW5-231018	Total/NA	Water	350.1	
280-183394-1 MSD	MW5-231018	Total/NA	Water	350.1	
280-183394-9 MS	SW4-231018	Total/NA	Water	350.1	
280-183394-9 MSD	SW4-231018	Total/NA	Water	350.1	

Analysis Batch: 633351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-3	MW7-231018	Total/NA	Water	350.1	
280-183394-7	MW20DD-231018	Total/NA	Water	350.1	
280-183394-9	SW4-231018	Total/NA	Water	350.1	
280-183394-10	SW6-231018	Total/NA	Water	350.1	
280-183394-11	SW7-231018	Total/NA	Water	350.1	
MB 280-633351/129	Method Blank	Total/NA	Water	350.1	
LCS 280-633351/130	Lab Control Sample	Total/NA	Water	350.1	
280-183372-A-44 MS	Matrix Spike	Total/NA	Water	350.1	
280-183372-A-44 MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	

Analysis Batch: 633888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-183394-1	MW5-231018	Total/NA	Water	300.0	
280-183394-2	MW6-231018	Total/NA	Water	300.0	
280-183394-3	MW7-231018	Total/NA	Water	300.0	
280-183394-4	MW12I-231018	Total/NA	Water	300.0	
280-183394-5	MW13D-231018	Total/NA	Water	300.0	
280-183394-6	MW14-231018	Total/NA	Water	300.0	
280-183394-7	MW20DD-231018	Total/NA	Water	300.0	
280-183394-8	SW1-231018	Total/NA	Water	300.0	
280-183394-9	SW4-231018	Total/NA	Water	300.0	
280-183394-10	SW6-231018	Total/NA	Water	300.0	
280-183394-11	SW7-231018	Total/NA	Water	300.0	
MB 280-633888/6	Method Blank	Total/NA	Water	300.0	
LCS 280-633888/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 280-633888/5	Lab Control Sample Dup	Total/NA	Water	300.0	
MRL 280-633888/3	Lab Control Sample	Total/NA	Water	300.0	
280-183394-5 MS	MW13D-231018	Total/NA	Water	300.0	
280-183394-5 MSD	MW13D-231018	Total/NA	Water	300.0	
280-183394-5 DU	MW13D-231018	Total/NA	Water	300.0	

Lab Chronicle

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Client Sample ID: MW5-231018
Date Collected: 10/18/23 10:25
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/24/23 22:04	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633185	11/08/23 20:19	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/14/23 22:37	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	632340	11/02/23 16:19	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 12:44	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631282	10/25/23 16:12	ABW	EET DEN

Client Sample ID: MW6-231018
Date Collected: 10/18/23 16:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/24/23 22:28	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633185	11/08/23 20:22	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/14/23 23:32	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	632340	11/02/23 16:30	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:03	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631282	10/25/23 17:06	ABW	EET DEN

Client Sample ID: MW7-231018
Date Collected: 10/18/23 08:55
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/24/23 22:52	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633040	11/08/23 09:45	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/14/23 23:43	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	633351	11/09/23 14:01	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:09	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631282	10/25/23 19:48	ABW	EET DEN

Client Sample ID: MW12I-231018
Date Collected: 10/18/23 12:06
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/24/23 23:16	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633040	11/08/23 09:48	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/14/23 23:54	EJS	EET DEN

Lab Chronicle

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Client Sample ID: MW12I-231018

Lab Sample ID: 280-183394-4

Date Collected: 10/18/23 12:06

Matrix: Water

Date Received: 10/20/23 18:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	10 mL	10 mL	632340	11/02/23 16:35	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:15	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631357	10/26/23 02:04	ABW	EET DEN

Client Sample ID: MW13D-231018

Lab Sample ID: 280-183394-5

Date Collected: 10/18/23 13:35

Matrix: Water

Date Received: 10/20/23 18:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/24/23 23:40	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633040	11/08/23 09:52	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/15/23 00:05	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	632340	11/02/23 16:38	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:21	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631357	10/26/23 03:15	ABW	EET DEN

Client Sample ID: MW14-231018

Lab Sample ID: 280-183394-6

Date Collected: 10/18/23 16:45

Matrix: Water

Date Received: 10/20/23 18:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/25/23 00:04	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633040	11/08/23 09:55	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/15/23 00:49	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	632340	11/02/23 16:41	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:26	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631357	10/26/23 03:31	ABW	EET DEN

Client Sample ID: MW20DD-231018

Lab Sample ID: 280-183394-7

Date Collected: 10/18/23 07:00

Matrix: Water

Date Received: 10/20/23 18:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/25/23 00:28	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633040	11/08/23 09:59	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/15/23 01:00	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	633351	11/09/23 14:17	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:32	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631357	10/26/23 03:46	ABW	EET DEN

Lab Chronicle

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Client Sample ID: SW1-231018
Date Collected: 10/18/23 11:50
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/25/23 00:51	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633040	11/08/23 10:02	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/15/23 01:11	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	632340	11/02/23 17:05	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:37	LL	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	631357	10/26/23 04:02	ABW	EET DEN

Client Sample ID: SW4-231018
Date Collected: 10/18/23 13:15
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/25/23 01:15	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633185	11/08/23 20:26	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/15/23 01:22	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	633351	11/09/23 14:23	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:43	LL	EET DEN
Total/NA	Analysis	SM 5310B		2	20 mL	20 mL	631357	10/26/23 04:18	ABW	EET DEN

Client Sample ID: SW6-231018
Date Collected: 10/18/23 14:15
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/25/23 01:39	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633185	11/08/23 20:29	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/14/23 22:48	EJS	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	633351	11/09/23 14:25	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:49	LL	EET DEN
Total/NA	Analysis	SM 5310B		2	20 mL	20 mL	631357	10/26/23 04:32	ABW	EET DEN

Client Sample ID: SW7-231018
Date Collected: 10/18/23 15:05
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	25 mL	25 mL	688915	10/25/23 02:03	LCH	EET BUF
Dissolved	Prep	3005A			50 mL	50 mL	632699	11/07/23 08:44	MSM	EET DEN
Dissolved	Analysis	6020		1			633185	11/08/23 20:33	LMT	EET DEN
Total/NA	Analysis	300.0		1	10 mL	10 mL	633888	11/14/23 22:59	EJS	EET DEN

Lab Chronicle

Client: Aspect Consulting
Project/Site: Hansville Landfill

Job ID: 280-183394-1

Client Sample ID: SW7-231018

Date Collected: 10/18/23 15:05
Date Received: 10/20/23 18:57

Lab Sample ID: 280-183394-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	10 mL	10 mL	633351	11/09/23 14:20	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1			630984	10/24/23 13:55	LL	EET DEN
Total/NA	Analysis	SM 5310B		2	20 mL	20 mL	631357	10/26/23 04:46	ABW	EET DEN

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

SC0056 = Analytical Resources, Inc, 4611 South 134th Place, Suite 100, Tukwila, WA 98168, TEL (206)695-6200

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

04 November 2023

Janice Collins
Eurofins - Test America - Denver
4955 Yarrow Street
Arvada, CO 80002

RE: Hansville Landfill (28006013)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23J0532	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Shelly Fishel, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

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

23J0532

Chain of Custody Record

eurofins | Environment Testing — ARI

Client Information	Sampler: CMI & FCE	Lab PM: Collins, Janice S	Carrier Tracking No(s):	COC No: 280-125973-19522.1
Client Contact: Peter Bannister & Jasmin Ford	Phone: 404-210-6437	E-Mail: Janice.Collins@et.eurofinsus.com	State of Origin:	Page:
Company: Aspect Consulting, LLC	PWSID:			Job #:
Address: 350 Madison Ave N	Due Date Requested:			
City: Bainbridge Island	TAT Requested (days):			
State, Zip: WA, 98110	Compliance Project: Δ Yes Δ No			
Phone: 404-210-6437	PO #: Purchase Order not required			
Email: Pbannister@aspectconsulting.com	WO #:			
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 2Q_3Q_4Q Sampling			
Site: Washington	SSOW#:			

jford @aspectconsulting.com

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Alks/Cl/SO4	6020 - Dissolved Metals (field filtered)	Ammonia/TOC	8260C SIM - Vinyl Chloride (Buffalo)		Ortho-phosphate (field filtered) - Direct sub to ARI	Dissolved Arsenic (Direct sub to ARI)	Nitrate/Nitrite (IC) - Direct sub to ARI						Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	S	A		N	D	N							
mw-5-231018	10/18/23	1025	G	W								X	X	X							Diss As,NO3,NO2,o-phos subbed direct to ARI
mw-6-231018		1650																			
mw-7-231018		0855																			
mw-12I-231018		1206																			
mw-13D-231018		1335																			
mw-14-231018		1645																			
mw-20D-231018		0700																			
SW-1-231018		1150																			
SW-4-231018		1315																			
SW-6-231018		1415																			
SW-7-231018	↓	1505	↓	↓								↓	↓	↓							

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

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

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

Special Instructions/QC Requirements:

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/19/23 / 0950	Aspect		10/19/23 0950	ARI LLC
Relinquished by:	Date/Time:	Company	Received by:	10/19/23 09 KPE	10-19-23
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks:

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-5-231018	23J0532-01	Water	18-Oct-2023 10:25	19-Oct-2023 09:50
MW-6-231018	23J0532-02	Water	18-Oct-2023 16:50	19-Oct-2023 09:50
MW-7-231018	23J0532-03	Water	18-Oct-2023 08:55	19-Oct-2023 09:50
MW-12I-231018	23J0532-04	Water	18-Oct-2023 12:06	19-Oct-2023 09:50
MW-13D-231018	23J0532-05	Water	18-Oct-2023 13:35	19-Oct-2023 09:50
MW-14-231018	23J0532-06	Water	18-Oct-2023 16:45	19-Oct-2023 09:50
MW-20DD-231018	23J0532-07	Water	18-Oct-2023 07:00	19-Oct-2023 09:50
SW-1-231018	23J0532-08	Water	18-Oct-2023 11:50	19-Oct-2023 09:50
SW-4-231018	23J0532-09	Water	18-Oct-2023 13:15	19-Oct-2023 09:50
SW-6-231018	23J0532-10	Water	18-Oct-2023 14:15	19-Oct-2023 09:50
SW-7-231018	23J0532-11	Water	18-Oct-2023 15:05	19-Oct-2023 09:50

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

Work Order Case Narrative

Client: Eurofins - Test America - Denver
Project: Hansville Landfill
Work Order: 23J0532

Sample receipt

Samples as listed on the preceding page were received 19-Oct-2023 09:50 under ARI work order 23J0532. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Dissolved Metals - EPA Method 200.8

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Orthophosphorus. The samples were analyzed in hold but had a low blank spike recovery. The samples were reanalyzed out of hold with passing QC. Only the reanalysis data has been reported. The deviation has been flagged.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

WORK ORDER

23J0532

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Eurofins - Test America - Denver **Project Manager:** Shelly Fishel

Project: Hansville **Project Number:** [none]

Preservation Confirmation

Container ID	Container Type	pH
23J0532-01 A	HDPE NM, 500 mL	
23J0532-01 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-01 C	HDPE NM, 250mL	
23J0532-02 A	HDPE NM, 500 mL	
23J0532-02 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-02 C	HDPE NM, 250mL	
23J0532-03 A	HDPE NM, 500 mL	
23J0532-03 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-03 C	HDPE NM, 250mL	
23J0532-04 A	HDPE NM, 500 mL	
23J0532-04 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-04 C	HDPE NM, 250mL	
23J0532-05 A	HDPE NM, 500 mL	
23J0532-05 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-05 C	HDPE NM, 250mL	
23J0532-06 A	HDPE NM, 500 mL	
23J0532-06 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-06 C	HDPE NM, 250mL	
23J0532-07 A	HDPE NM, 500 mL	
23J0532-07 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-07 C	HDPE NM, 250mL	
23J0532-08 A	HDPE NM, 500 mL	
23J0532-08 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-08 C	HDPE NM, 250mL	
23J0532-09 A	HDPE NM, 500 mL	
23J0532-09 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-09 C	HDPE NM, 250mL	
23J0532-10 A	HDPE NM, 500 mL	
23J0532-10 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-10 C	HDPE NM, 250mL	
23J0532-11 A	HDPE NM, 500 mL	
23J0532-11 B	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
23J0532-11 C	HDPE NM, 250mL	

Reviewed By Date

WORK ORDER

23J0532

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Eurofins - Test America - Denver

Project Manager: Shelly Fishel

Project: Hansville

Project Number: [none]

KFC
Preservation Confirmed By

10-19-23
Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Evrafns
Project Name: Hansville Landfill
COC No(s): 280-125973-19522.1 NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: 23J0532
Tracking No: NA

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time: 0950 — 1.3°C

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: IR59708

Cooler Accepted by: MD Date: 10/19/23 Time: 0950

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
How were bottles sealed in plastic bags?	Individually	Grouped	Not
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		

Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: KFC Date: 10-19-23 Time: 1048 Labels checked by: KFC

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-5-231018

23J0532-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 10:25

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 20:05

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-01 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.87	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-5-231018

23J0532-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 10:25

Instrument: IC930 Analyst: BF — Analyzed: 10/19/2023 21:03

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-01 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	3.21	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	0.12	mg-P/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-5-231018

23J0532-01RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 10:25

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 03:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-01RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-6-231018

23J0532-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 16:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/01/2023 04:32

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-02 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.78	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-6-231018

23J0532-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 16:50

Instrument: IC930 Analyst: BF — Analyzed: 10/19/2023 21:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-02 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.172	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-6-231018

23J0532-02RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 16:50

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 03:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-02RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-7-231018

23J0532-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 08:55

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 19:44

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-03 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.21	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-7-231018

23J0532-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 08:55

Instrument: IC930 Analyst: BF — Analyzed: 10/19/2023 21:44

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-03 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	1.09	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-7-231018

23J0532-03RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 08:55

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 03:44

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-03RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-12I-231018

23J0532-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 12:06

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 19:48

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-04 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	2.44	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-12I-231018

23J0532-04 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 12:06

Instrument: IC930 Analyst: BF — Analyzed: 10/19/2023 22:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-04 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-12I-231018

23J0532-04RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 12:06

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 04:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-04RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-13D-231018

23J0532-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 13:35

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 19:51

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-05 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	5.40	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-13D-231018

23J0532-05 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 13:35

Instrument: IC930 Analyst: BF — Analyzed: 10/19/2023 22:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-05 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-13D-231018

23J0532-05RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 13:35

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 04:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-05RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-14-231018

23J0532-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 16:45

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 19:55

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-06 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	14.1	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-14-231018

23J0532-06 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 16:45

Instrument: IC930 Analyst: BF — Analyzed: 10/19/2023 22:44

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-06 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.232	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-14-231018

23J0532-06RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 16:45

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 05:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-06RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-20DD-231018

23J0532-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 07:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 19:58

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-07 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	13.9	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-20DD-231018

23J0532-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 07:00

Instrument: IC930 Analyst: BF — Analyzed: 10/20/2023 00:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-07 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

MW-20DD-231018

23J0532-07RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 07:00

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 05:44

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-07RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-1-231018

23J0532-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 11:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 20:02

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-08 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.52	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-1-231018

23J0532-08 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 11:50

Instrument: IC930 Analyst: BF — Analyzed: 10/20/2023 00:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23J0532-08 C

Preparation Batch: BLJ0621 — Sample Size: 10 mL

Prepared: 10/19/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	2.76	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-1-231018

23J0532-08RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 11:50

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 06:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-08RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-4-231018

23J0532-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 13:15

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 20:29

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-09 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.92	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-4-231018

23J0532-09 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 13:15

Instrument: IC930 Analyst: BF — Analyzed: 10/20/2023 00:44

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-09 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.696	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-4-231018

23J0532-09RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 13:15

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 06:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-09RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-6-231018

23J0532-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 14:15

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 20:33

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-10 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	3.08	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-6-231018

23J0532-10 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 14:15

Instrument: IC930 Analyst: BF — Analyzed: 10/20/2023 01:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-10 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.138	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-6-231018

23J0532-10RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 14:15

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 06:44

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-10RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-7-231018

23J0532-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 10/18/2023 15:05

Instrument: ICPMS2 Analyst: MCB — Analyzed: 11/02/2023 20:36

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 23J0532-11 B 01

Preparation Batch: BLJ0958 — Sample Size: 25 mL

Prepared: 10/31/2023 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	2.17	ug/L	

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-7-231018

23J0532-11 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 15:05

Instrument: IC930 Analyst: BF — Analyzed: 10/20/2023 01:24

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-11 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.237	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

SW-7-231018

23J0532-11RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 10/18/2023 15:05

Instrument: IC930 Analyst: BF — Analyzed: 10/21/2023 07:04

Sample Preparation: Preparation Method: No Prep Wet Chem; Preparation Batch: BLJ0621; Prepared: 10/19/2023; Sample Size: 10 mL; Final Volume: 10 mL — Extract ID: 23J0532-11RE2 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-44-42	1	0.10	0.10	ND	mg-P/L	H, U

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BLJ0958 - EPA 200.8 UCT-KED

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLJ0958-BLK1)						Prepared: 31-Oct-2023 Analyzed: 01-Nov-2023 07:09						
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
LCS (BLJ0958-BS1)						Prepared: 31-Oct-2023 Analyzed: 01-Nov-2023 07:13						
Arsenic, Dissolved	75a	24.8	0.0373	0.200	ug/L	25.0		99.4	80-120			
Duplicate (BLJ0958-DUP1)			**Source: 23J0532-01**			Prepared: 31-Oct-2023 Analyzed: 02-Nov-2023 20:09						
Arsenic, Dissolved	75a	1.60	0.0373	0.200	ug/L		1.87			15.30	20	
Matrix Spike (BLJ0958-MS1)			**Source: 23J0532-01**			Prepared: 31-Oct-2023 Analyzed: 02-Nov-2023 20:12						
Arsenic, Dissolved	75a	27.1	0.0373	0.200	ug/L	25.0	1.87	101	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLJ0621 - EPA 300.0

Instrument: IC930 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLJ0621-BLK1)				Prepared: 19-Oct-2023 Analyzed: 19-Oct-2023 20:23							
Nitrate-N	ND	0.100	0.100	mg/L							U
Nitrite-N	ND	0.100	0.100	mg/L							U
Blank (BLJ0621-BLK2)				Prepared: 19-Oct-2023 Analyzed: 23-Oct-2023 12:29							
Orthophosphorus	ND	0.10	0.10	mg-P/L							U
LCS (BLJ0621-BS1)				Prepared: 19-Oct-2023 Analyzed: 19-Oct-2023 20:43							
Nitrate-N	5.15	0.100	0.100	mg/L	5.00		103	90-110			
Nitrite-N	5.36	0.100	0.100	mg/L	5.00		107	90-110			
LCS (BLJ0621-BS2)				Prepared: 19-Oct-2023 Analyzed: 23-Oct-2023 12:49							
Orthophosphorus	5.00	0.10	0.10	mg-P/L	5.00		100	90-110			

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 300.0 in Water	
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Orthophosphorus	DoD-ELAP,WADOE,WA-DW,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024

Eurofins - Test America - Denver	Project: Hansville Landfill	
4955 Yarrow Street	Project Number: 28006013	**Reported:**
Arvada CO, 80002	Project Manager: Janice Collins	04-Nov-2023 18:07

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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

Chain of Custody Record

eurofins | Environment Testing

TA

Client Information	Sampler: CMTI & FCE	Lab PM: Collins, Janice S	Carrier Tracking No(s):	COC No: 280-125973-19522.1
Client Contact: Peter Bannister & Jasmin Toro	Phone: 404-210-6437	E-Mail: Janice.Collins@et.eurofinsus.com	State of Origin:	Page:
Company: Aspect Consulting, LLC	PWSID:			Job #:
Address: 350 Madison Ave N	Due Date Requested:			
City: Bainbridge Island	TAT Requested (days):			
State, Zip: WA, 98110	Compliance Project: Δ Yes Δ No			
Phone: 404-210-6437	PO #: Purchase Order not required			
Email: Pbannister@aspectconsulting.com (jtoro@aspectconsulting.com)	WO #:			
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 2Q_3Q_4Q Sampling			
Site: Washington	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, M - Hexane, N - None, O - AsNaO2, P - Na2O4S

280-183394 Chain of Custody

ydrate

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Alks/Cl/SO4	6020 - Dissolved Metals (field filtered)	Ammonia/TOC	8260C SIM - Vinyl Chloride (Buffalo)		Ortho-phosphate (field filtered) - Direct sub to ARI	Dissolved Arsenic (Direct sub to ARI)	Nitrate/Nitrite (IC) - Direct sub to ARI						Total Number of c	Special Instructions/Note:
Preservation Code:							N	D	S	A		N	D	N							
MW-5-231018	10/18/23	1025	G	W			X	X	X	X											Diss As,NO3,NO2,o-phos subbed direct to ARI
MW-6-231018		1650																			We did not
MW-7-231018		0855																			recieve any TB
MW-12-231018		1206																			
MW-13D-231018		1335																			
MW-14-231018		1645																			
MW-20D-231018		0700																			
SW-1-231018		1150																			
SW-4-231018		1315																			
SW-6-231018		1415																			
SW-7-231018	↓	1505	↓	↓			↓	↓	↓	↓											

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

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

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

Special Instructions/QC Requirements:

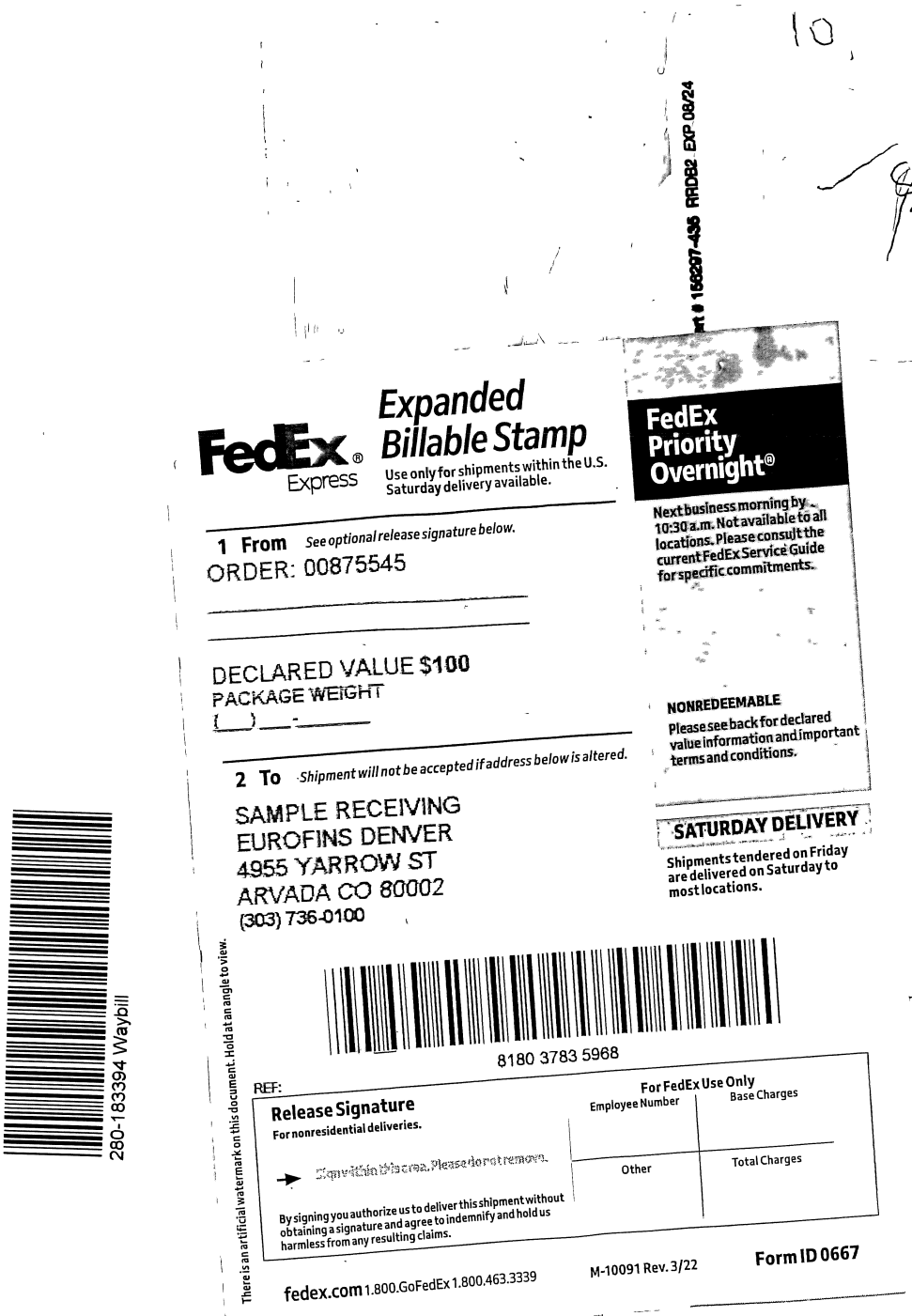
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/19/23 / 0950	Aspect		10.20.23 0945	EETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	-0.1, 0.3°C IR Gun ID CF03

Ver: 01/16/2019

11/17/2023



FedEx Express

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ORDER: 00875545

DECLARED VALUE $100

PACKAGE WEIGHT

( ) -

2 To Shipment will not be accepted if address below is altered.

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EUROFINS DENVER
4955 YARROW ST
ARVADA CO 80002
(303) 736-0100

FedEx Priority Overnight®

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SATURDAY DELIVERY

Shipments tendered on Friday are delivered on Saturday to most locations.

8180 3783 5968

REF:

Release Signature

For nonresidential deliveries.

Sign within this area. Please do not remove.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

For FedEx Use Only

Employee Number | Base Charges

Other | Total Charges

fedex.com 1.800.GoFedEx 1.800.463.3339

M-10091 Rev. 3/22

Form ID 0667

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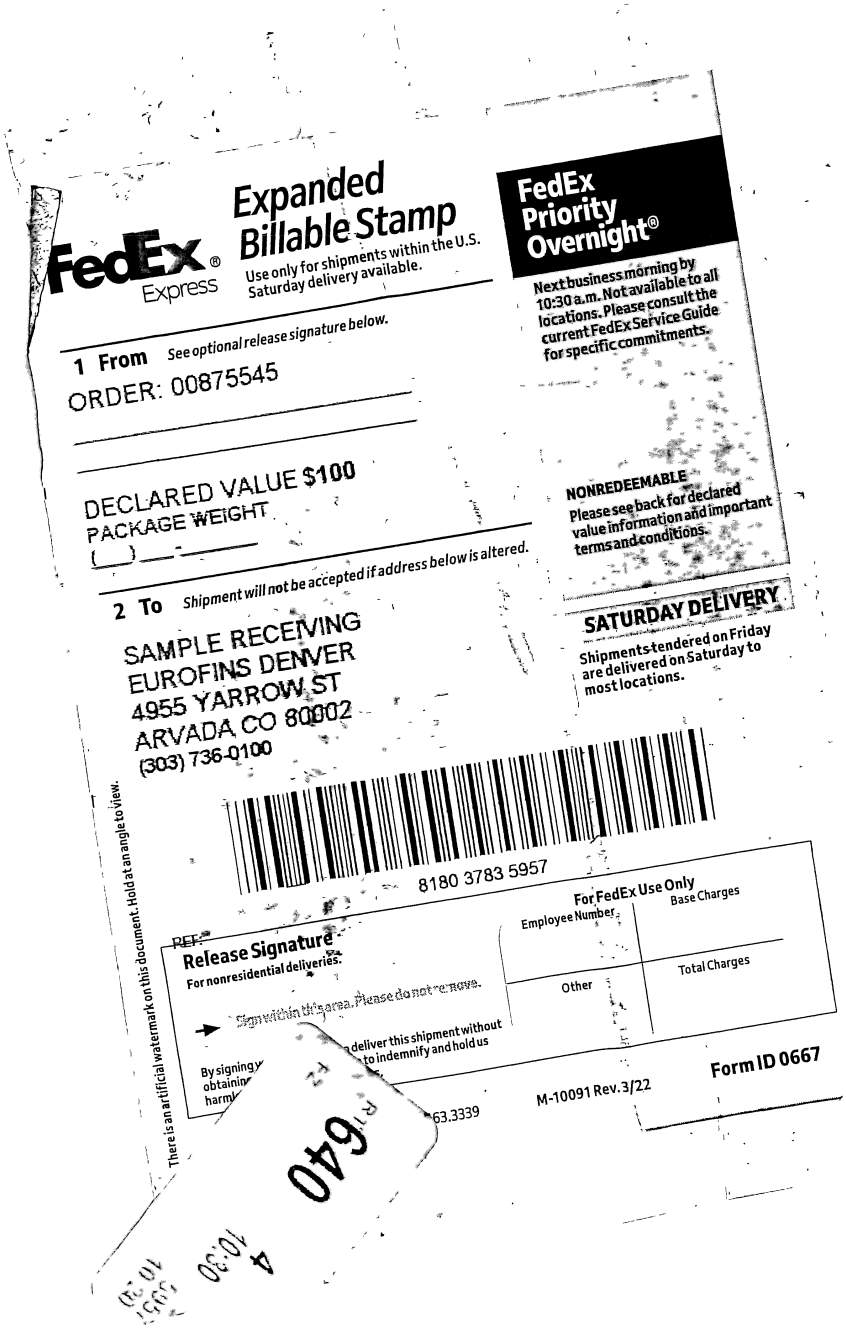
280-183394 Waybill



FedEx Express

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FedEx Priority Overnight®

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1 From See optional release signature below.

ORDER: 00875545

DECLARED VALUE $100

PACKAGE WEIGHT

( ) ___ - _____

NONREDEEMABLE

Please see back for declared value information and important terms and conditions.

2 To Shipment will not be accepted if address below is altered.

SAMPLE RECEIVING
EUROFINS DENVER
4955 YARROW ST
ARVADA CO 80002
(303) 736-0100

SATURDAY DELIVERY

Shipments tendered on Friday are delivered on Saturday to most locations.

8180 3783 5957

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For FedEx Use Only

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Other | Total Charges

REF

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For nonresidential deliveries.

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63.3339

M-10091 Rev. 3/22

Form ID 0667

640

4 10:30

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Collins, Janice S	Carrier Tracking No(s):	COC No: 280-677657.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Janice.Collins@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 2
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State Program - Washington		Job #: 280-183394-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 11/2/2023			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Hansville Landfill	Project #: 28006013			
Site: Hansville	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C_SIM/5030C (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW5-231018 (280-183394-1)	10/18/23	10:25 Pacific		Water			X	3	
MW6-231018 (280-183394-2)	10/18/23	16:50 Pacific		Water			X	3	
MW7-231018 (280-183394-3)	10/18/23	08:55 Pacific		Water			X	3	
MW12I-231018 (280-183394-4)	10/18/23	12:06 Pacific		Water			X	3	
MW13D-231018 (280-183394-5)	10/18/23	13:35 Pacific		Water			X	3	
MW14-231018 (280-183394-6)	10/18/23	16:45 Pacific		Water			X	2	
MW20DD-231018 (280-183394-7)	10/18/23	07:00 Pacific		Water			X	3	
SW1-231018 (280-183394-8)	10/18/23	11:50 Pacific		Water			X	3	
SW4-231018 (280-183394-9)	10/18/23	13:15 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/23/23			10-24-23 1100	TAB
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.3 ICE

Ver: 06/08/2021

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Collins, Janice S	Carrier Tracking No(s):	COC No: 280-677657.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Janice.Collins@et.eurofinsus.com	State of Origin: Washington	Page: Page 2 of 2
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State Program - Washington		Job #: 280-183394-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 11/2/2023			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Hansville Landfill	Project #: 28006013			
Site: Hansville	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C_SIM/5030C (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SW6-231018 (280-183394-10)	10/18/23	14:15 Pacific		Water			X	3	
SW7-231018 (280-183394-11)	10/18/23	15:05 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time: 10/23/23 1510	Company: ETA EN	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Aspect Consulting

Job Number: 280-183394-1

Login Number: 183394
List Number: 1
Creator: Little, Matthew L

List Source: Eurofins Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	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 (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Aspect Consulting

Job Number: 280-183394-1

Login Number: 183394
List Number: 2
Creator: Yeager, Brian A

List Source: Eurofins Buffalo
List Creation: 10/24/23 03:10 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3 ICE
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 (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

APPENDIX E

Annual Inspection Forms – Kitsap Public Health District

KITSAP PUBLIC HEALTH DISTRICT

File Index: II.A.3

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Landfill Inspection Form

Hansville Landfill (Post-closure) — Facility Name

Kitsap County Public Works — Operator

7791 NE Ecology RD — Location of Facility

(360) 337-5784 — Phone Number

Jakob Hughes — Inspector

03/31/2023 — Date

9:30 A.M. — Time

Alexis McKinnon — Facility Representative Present

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled ☐ Return ☐ Complaint ☐ Permit investigation ☐ Sample ☐ By request ☐ Other	☒ Full quarterly ☐ Semiannual ☐ Annual ☐ Brief ☐ No entry ☐ Other	☒ Compliant ☐ Substantially compliant ☐ Non-compliant ☐ Disapproved ☐ Other	☐ Yes ☒ No **Attachments (photos, documents, etc.)?** ☐ Yes ☒ No

General

Landfill cap is intact. No garbage/waste eroding out of the cap.			
Yes ☒	No ☐	N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(i)*

The landfill is undeveloped. No construction/buildings within the active area of the landfill.			
Yes ☒	No ☐	N/A ☐	**Citation:** *KCBH 2010-1-460(c)*

Revision date: 08/4/2022

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Bremerton, WA 98337
360-728-2235

No stormwater is being detained or stored on the landfill.	
Yes ☒ No ☐ N/A ☐	**Citation:** *KCBH 2010-1-460(b)*

The site is free of solid waste, debris, and/or illegal dumping.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-407(5)(c)*

The site is free of noxious odors.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

Post-Closure Care

Public access is controlled by means of a lockable gate at each vehicle entry to the facility	
Yes ☒ No ☐ N/A ☐	**Citation:** *Permit*

Vegetation on the landfill cap is cut/mowed as necessary to maintain the integrity of the cap.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-350-400(11)(a)(i)*

Landfill cap is free of plant species with root structures capable of puncturing the liner system (e.g., alder, Scotch broom, and blackberry).	
Yes ☒ No ☐ N/A ☐	**Citation:** *Permit*

The landfill maintains and operates a gas monitoring system.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(iv)*

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Bremerton, WA 98337
360-728-2235

Landfill gasses are collected and controlled. Acceptable methods include purification for sale, flaring, and utilization for energy. If the landfill produces little or no landfill gasses, gasses may be controlled through ventilation.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(f)*

The landfill maintains and operates a leachate collection system. Leachate collection and storage systems are in good repair; no discharge of leachate into any surface waters.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(ii) & WAC 173-304-460(2)(c)*

Groundwater is being monitored in accordance with WAC 173-304-490.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)*

Run-on and runoff are managed to prevent erosion of the landfill cap. Storm water channels are free of excessive debris, vegetation, and/or sedimentation.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(i)*

Stormwater discharge to waterbodies/wetlands is free of turbidity.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-351-200(8)*

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Comments

Attendance: Jakob Hughes, Thomas Jury, Alexis McKinnon
Landfill in great condition
Installed Biofilter got rid of flare system

Signatures: Jakob Hughes
Environmental Health Specialist

A McKinnon
Facility Representative

03/31/2023
Date

Revision date: 08/4/2022

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

March 31st, 2023

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: QUARTERLY HANSVILLE LANDFILL INSPECTION,

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 1st quarter inspection of 2023 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on March 31st, 2023, at 9:30 A.M.

The following items were noted or discussed:

- The landfill cover was in good condition.
- Grass had been mowed and is in excellent condition
- A biofilter has been installed on site.

If you have any questions or comments, please feel free to contact me at (360) 728-2307.

Sincerely,

Jakob Hughes
Environmental Health Specialist
Solid and Hazardous Waste Program
Phone: (360)728-2307
Email: Jakob.Hughes@KitsapPublicHealth.org

KITSAP PUBLIC HEALTH DISTRICT

File Index: TT.A.3

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Closed and Abandoned Landfill Inspection Form

Hansville Landfill (Post-closure)
Facility Name

7791 NE Ecology RD
Location of Facility

Jakob Hughes — 06/15/23 — 9:00 A.M.
Inspector **Date** **Time**

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled ☐ Complaint ☐ Sample ☐ Other	☐ Annual ☒ Other	☒ Compliant ☐ Substantially compliant ☐ Non-compliant	☐ Yes ☒ No **Attachments (photos, documents, etc.)?** ☐ Yes ☒ No

General

Landfill cap is intact. No garbage/waste eroding out of the cap.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(i)*

The landfill is undeveloped. No construction/buildings within the active area of the landfill.	
Yes ☒ No ☐ N/A ☐	**Citation:** *KCBH 2010-1-460(c)*

No stormwater is being detained or stored on the landfill.	
Yes ☒ No ☐ N/A ☐	**Citation:** *KCBH 2010-1-460(b)*

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

The site is free of solid waste, debris, and/or illegal dumping.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-407(5)(c)*

The site is free of noxious odors.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

There are no signs of leachate seeps coming from the landfill.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

Post-Closure Monitoring (for landfills closed between 1985 and 2003)

Groundwater is being monitored in accordance with WAC 173-304-490.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)*

Leachate is being monitored (if required by the Health District)	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)(B)*

Methane/landfill gasses are being monitored (if required by the Health District)	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)(A)*

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Comments

Biofilter - Added layer of sand to compost
Graveled entry and sides of landfill for easier vehicle ~~traffic~~ travel
Grass will be mowed in coming weeks

Signatures: Jakob Hughes — Environmental Health Specialist; J McKinnon — Facility Representative; 06/15/23 — Date

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

June 23rd, 2023

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: QUARTERLY HANSVILLE LANDFILL INSPECTION,

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 2nd quarter inspection of 2023 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on June 15th, 2023, at 9:00 A.M.

The following items were noted or discussed:

- The landfill cover was in good condition.
- Grass needs to be mowed.
- Gravel has been placed on the roadway up to landfill for improved driving access.

If you have any questions or comments, please feel free to contact me at (360) 728-2307.

Sincerely,

Jakob Hughes

Jakob Hughes
Environmental Health Specialist
Solid and Hazardous Waste Program
Phone: (360)728-2307
Email: Jakob.Hughes@KitsapPublicHealth.org

KITSAP PUBLIC HEALTH DISTRICT

File Index: II.A.3

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Closed and Abandoned Landfill Inspection Form

Hansville Landfill (Post-closure)
Facility Name

7791 NE Ecology RD
Location of Facility

Jakob Hughes — 09/29/23 — 9:00 A.M.
Inspector **Date** **Time**

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled ☐ Complaint ☐ Sample ☐ Other	☒ Annual ☐ Other	☒ Compliant ☐ Substantially compliant ☐ Non-compliant	☐ Yes ☒ No **Attachments (photos, documents, etc.)?** ☐ Yes ☒ No

General

Landfill cap is intact. No garbage/waste eroding out of the cap.			
Yes ☒	No ☐	N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(i)*

The landfill is undeveloped. No construction/buildings within the active area of the landfill.			
Yes ☒	No ☐	N/A ☐	**Citation:** *KCBH 2010-1-460(c)*

No stormwater is being detained or stored on the landfill.			
Yes ☒	No ☐	N/A ☐	**Citation:** *KCBH 2010-1-460(b)*

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

The site is free of solid waste, debris, and/or illegal dumping.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-407(5)(c)*

The site is free of noxious odors.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

There are no signs of leachate seeps coming from the landfill.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

Post-Closure Monitoring (for landfills closed between 1985 and 2003)

Groundwater is being monitored in accordance with WAC 173-304-490.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)*

Leachate is being monitored (if required by the Health District)	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)(B)*

Methane/landfill gasses are being monitored (if required by the Health District)	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)(A)*

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Comments

- Landfill freshly mowed
- Stormwater Diversion has greatly improved
- No issues

Signatures: _____ Environmental Health Specialist _____ Facility Representative 9/29/23 Date

KITSAP PUBLIC
HEALTH DISTRICT

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

October 10th, 2023

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: QUARTERLY HANSVILLE LANDFILL INSPECTION,

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 3rd quarter inspection of 2023 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on September 29th, 2023, at 9:00 A.M.

The following items were noted or discussed:

- The landfill cover was in good condition.
- Stormwater drainage has greatly improved. No water observed pooling after a major rain.

If you have any questions or comments, please feel free to contact me at (360) 728-2307.

Sincerely,

Jakob Hughes

Jakob Hughes
Environmental Health Specialist 2-RS
Solid and Hazardous Waste Program
Phone: (360)728-2307
Email: Jakob.Hughes@KitsapPublicHealth.org

6 \P PUBLIC
'H DISTRICT

File Index: II A.3

345 6th Street, Suite 300
Bremerton, WA 98337
360-728-2235

Closed and Abandoned Landfill Inspection Form

Hansville Landfill (Post-closure)
Facility Name

7791 NE Ecology Rd
Location of Facility

Jakob Hughes
Inspector

11/16/23
Date **Time**

Reason for Inspection	Type of Inspection	Results	Sample Taken?
☒ Scheduled ☐ Complaint ☐ Sample ☐ Other	☐ Annual ☒ Other – QTR	☒ Compliant ☐ Substantially compliant ☐ Non-compliant	☐ Yes ☒ No **Attachments (photos, documents, etc.)?** ☐ Yes ☐ No

General

Landfill cap is intact. No garbage/waste eroding out of the cap.			
Yes ☒	No ☐	N/A ☐	**Citation:** *WAC 173-351-500(2)(a)(i)*

The landfill is undeveloped. No construction/buildings within the active area of the landfill.			
Yes ☒	No ☐	N/A ☐	**Citation:** *KCBH 2010-1-460(c)*

No stormwater is being detained or stored on the landfill.			
Yes ☒	No ☐	N/A ☐	**Citation:** *KCBH 2010-1-460(b)*

Revision date: 08/4/2022

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360-728-2235

The site is free of solid waste, debris, and/or illegal dumping.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-407(5)(c)*

The site is free of noxious odors.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

There are no signs of leachate seeps coming from the landfill.	
Yes ☒ No ☐ N/A ☐	**Issue:** Potential cause for concern.

Post-Closure Monitoring (for landfills closed between 1985 and 2003)

Groundwater is being monitored in accordance with WAC 173-304-490.	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)*

Leachate is being monitored (if required by the Health District)	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)(B)*

Methane/landfill gasses are being monitored (if required by the Health District)	
Yes ☒ No ☐ N/A ☐	**Citation:** *WAC 173-304-460(3)(g)(ii)(A)*

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Comments

NO ISSUES

Signatures: _____ Environmental Health Specialist

_____ Facility Representative

11/16/23 Date

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HEALTH DISTRICT

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November 17th, 2023

Alexis McKinnon
Kitsap County Public Works
614 Division Street, MS-27
Port Orchard, WA 98366

RE: FOURTH QUARTER HANSVILLE LANDFILL INSPECTION,

Dear Ms. McKinnon:

The Kitsap Public Health District (Health District) is writing to relay the results of the 4th quarter inspection of 2023 at the Hansville Landfill. Enclosed please find a copy of the inspection checklist/report for the quarterly inspection conducted on November 16th, 2023, at 9:00 A.M.

The following items were noted or discussed:

- The landfill cover was in good condition.
- Stormwater drainage has maintained its improved performance.

If you have any questions or comments, please feel free to contact me at (360) 728-2307.

Sincerely,

Jakob Hughes

Jakob Hughes
Environmental Health Specialist 2-RS
Solid and Hazardous Waste Program
Phone: (360)728-2307
Email: Jakob.Hughes@KitsapPublicHealth.org